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# DATA RECORD OF OCEANOGRAPHIC OBSERVATIONS AND EXPLORATORY FISHING

No. 5

# 海洋調査漁業試験要報

第5号

THE FACULTY OF FISHERIES, HOKKAIDO UNIVERSITY
Hakodate, Hokkaido, Japan
March 1961

北海道大学水産学部
函館市港町
昭和36年3月

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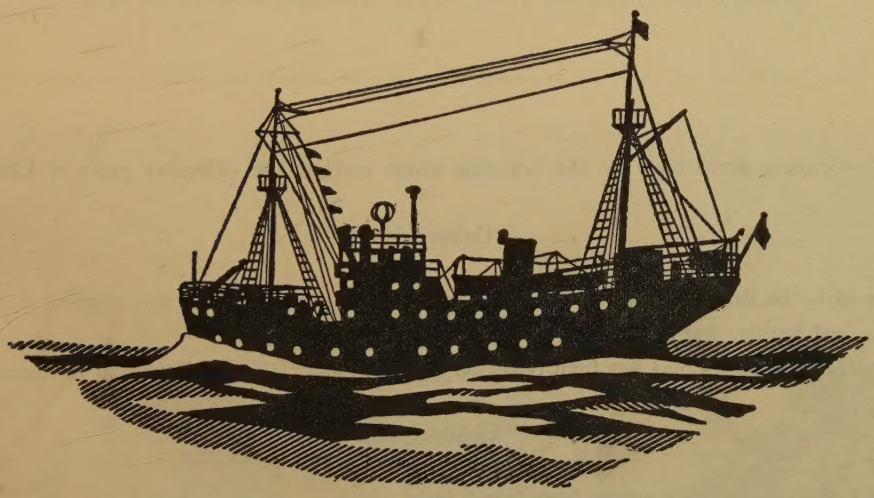
# DATA RECORD
# OF
# OCEANOGRAPHIC OBSERVATIONS AND
# EXPLORATORY FISHING

No. 5

# 海 洋 調 査 漁 業 試 験 要 報

第 5 号



THE FACULTY OF FISHERIES, HOKKAIDO UNIVERSITY
Hakodate, Hokkaido, Japan
March 1961

北 海 道 大 学 水 産 学 部
函 館 市 港 町
昭和36年3月

## NOTICE

This publication is being undertaken for the sake of making available to interested persons, as soon as possible, some preliminary data derived from oceanographic, biological or exploratory fishing researches carried out on the regular or occasional cruises of the training ships of the Faculty of Fisheries, Hokkaido University.

It is requested that due credit be given if data from this "Data Record" are quoted, or if information taken herefrom is incorporated in other papers.

本学部練習船を用いて行われた海洋観測，生物調査，漁業試験の結果が，各研究担当者によって研究論文として纏められ，印刷公表されるまでにはかなりの時日を要し，且研究論文には個々の測定値が表示されない場合が多いことを考慮し，練習船の調査航海毎に調査成果を本要報として逐次刊行し，各方面の参考に供することとした。

本要報に載せた測定結果を他に引用する場合は本要報によった旨明記しおかれたい。

## Cruises performed by the training ships during the calendar year of 1960

### "Oshoro Maru"

Cruise 46 to the Bering Sea and North Pacific from June 6 to August 29, 1960, stopping in Juneau, Alaska, and Seattle, Wash.

Cruise 47 to the East China Sea from November 10 to December 19, 1960, stopping in Keelung

### "Hokusei Maru"

Cruise 8 (1) to mid Kurile waters from June 5 to 16, 1960

Cruise 8 (2) to northern Kurile waters from June 21 to July 2, 1960

Cruise 8 (3) to the Okhotsk Sea from July 9 to 29, 1960

Cruise 8 (4) to the Okhotsk Sea from August 4 to 26, 1960

Cruise 9 to the western Caroline waters from November 12 to December 22, 1960

Fig. 1. Fisheries Museum on campus of the Faculty of Fisheries

Fig. 2. North Pacific Fisheries Institute in Nakabe Hall on campus of the Faculty of Fisheries

Fig. 3. The departure of the "Hokusei Maru" from Hakodate to the Kurile waters on June 4, 1960

Fig. 4. The "Oshoro Maru" moored in Juneau, Alaska, on July 21–26, 1960

Fig. 5. Chemical laboratory on board the "Oshoro Maru"
1. Illuminated tank for $C^{14}$ Productivity measurement

1

1

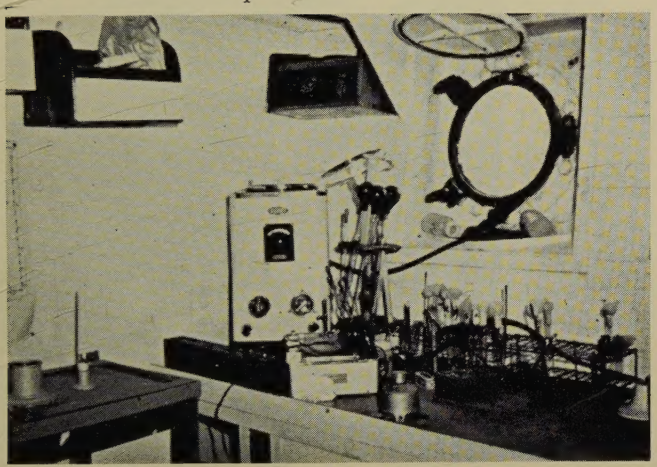


Fig. 6. Bacteriological laboratory on board the "Oshoro Maru"
1. Hot-air sterilizer

Fig. 7. J-Z Bacterial Sampler set on wire cable

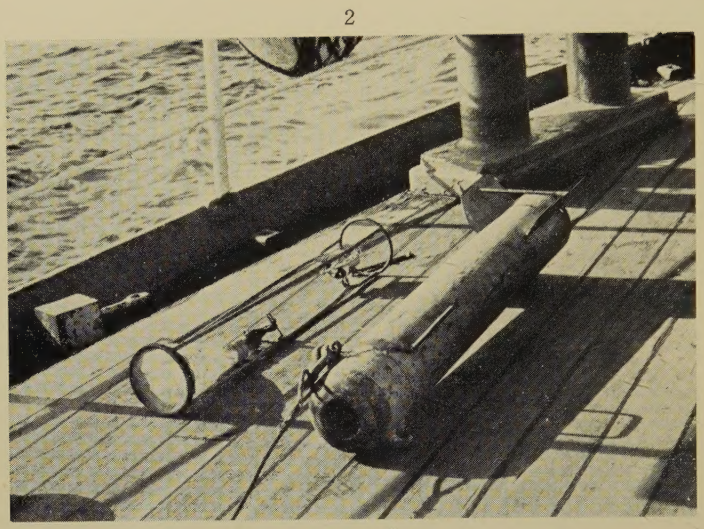



Fig. 8. Underway Plankton Catcher Model V used on the "Oshoro Maru" during the cruise

1. Small net set on the tripod supporter which is removed from the cylindrical case
2. Small type flow-meter mounted on the tripod supporter
3. Cylindrical case which is connected to the towing cable from the upper front

Fig. 9. Measuring the fish on deck of the "Oshoro Maru"

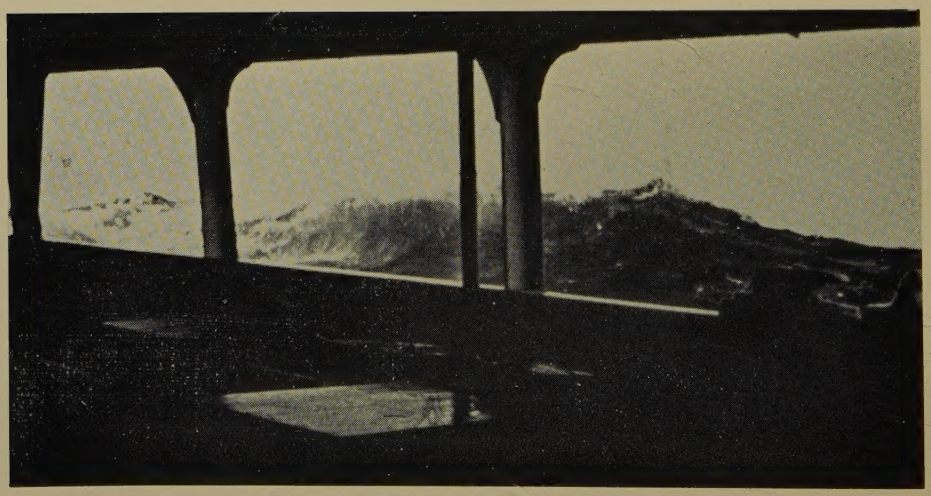


Fig. 10. Huge wave seen from the "Oshoro Maru" on homeward trip

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# DATA RECORD
# OF
# OCEANOGRAPHIC OBSERVATIONS AND EXPLORATORY FISHING

No. 5 March 1961

# 海洋調査漁業試験要報

第5号 昭和36年3月

The Faculty of Fisheries, Hokkaido University
北海道大学水産学部

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# I

# HYDROGRAPHIC OBSERVATIONS OF TSUGARU STRAITS
1935-1939

昭和10～14年津軽海峡横断海洋観測

The Hakodate College of Fisheries, the predecessor of the present Faculty of Fisheries, Hokkaido University, in Hakodate, was founded in Hakodate in April 1935 as an independent institution succeeding the previous status as School of Fisheries in Sapporo attached to the Hokkaido Imperial University. From September of that year the College Training Ship, "Oshoro Maru," was engaged in hydrographic observations sailing on a line which traversed the Tsugaru Straits from Hakodate in Hokkaido to Oma in Aomori Prefecture in Honshu. The ship was then 472 gross tons three-masted barquentine sailing vessel with an auxiliary Diesel engine of 500 H. P. The observation cruises were carried out for five years, once every half month from September through March of the following year, as the ship was off duty during these months from the regular training cruises. However, the data obtained by these observations were never put into print, and the original log books of the observations were unfortunately lost. A copy-note of some of the data is the only record of the observations available to us. In the copy-note is mentioned that the observations covered various items, *i.e.*, temperature, salinity, dissolved oxygen, pH value, current velocity, plankton, record of fishing yield on the coast around the straits, and so forth. However, most of the data on those items for 1935-36 and 1936-37 observations are not arranged properly enough to be placed on a publication, and none of the data except temperature is described in the 1937-39 observations. Therefore, only the data on temperature, salinity, dissolved oxygen and pH value for the 1935-36 observations; those on temperature, salinity and dissolved oxygen for observations in 1936-37; and those on temperature for observations in 1937-38, 1938-39, and 1939 (Sept.-Nov.) are presented in this *Data Record*.

In the copy-note are given the values of temperature, salinity and other elements against the depth in meters recorded in round number such as 0m, 5m, 10m, 20m, 30m, 50m, and so on. However, there is no description how the depths of observations were estimated. So it is unknown whether the depths of observations were decided by actually adjusting the position of each thermometer and Nansen bottle in suspension according to the degree of inclination of wire cable, or whether the values of temperature and others at each depth were given by interpolation. The angle of wire cable when suspended is not at all described in the copy-note.

昭和10年北海道帝国大学附属水産専門部廃止となり，その実体は函館に移って，函館高等水産学校として独立した。これを機として同年より練習船おしよろ丸（当時改造前で472トン，500馬力，補助ディーゼル機関付3檣バーケンタイン型帆船）の函館在泊期間（9月より翌年3月まで）を利用して同船による函館大澗間津軽海峡横断海洋観測を開始し，昭和14年11月まで継続した。その観測資料は印刷公表されないまま観測野帖原簿は失われ，僅かに写しのノート一部を残すのみであるので記録の永久に失われることを惜しみここに収録することとした。

本ノートには規定深度における観測値が示されているが，実際にワイヤー角度によって各層の採水器及温度計位置を加減してその層に於て観測を行ったものか，又は後に内挿法によって各規定層の観測値を求めたものか，之等に関する記載なく，又当時の担当者も記憶が薄れて，この点を詳にしない。尚ワイヤー角度は全く記載されていない。

## 1. Staff participating in the Research programme (1939)
(昭和10年調査関係者)

(1) Project leaders: (調査指導者)

Kanji Suda (Lecturer of Oceanography) (須田皖次)

Sataro Murayama (Professor of Fisheries) (村山佐太郎)

Seinai Yamamoto (Professor of Navigation and Seamanship) (山本清内)

(2) Research members and their sphere of work: (調査員及担当項目)

1. Measurement of temperature and sampling of water samples: (測温採水)

Kohei Ogaki (Captain) (大垣光平)

Kyuhachi Ikeda (Fishery Officer) (池田九八)

Banri Umeno (Purser) (梅野万里)

Yo Yoshida (Third Officer) (吉田　陽)

2. Plankton, fish larvae and bottom animals: (プランクトン, 稚魚, 底棲生物)

Risuke Kanno (Assistant Professor of Botany) (菅野利助)

Giichi Kawasaki (Assistant Professor of Fisheries) (川崎毅一)

Sataro Kobayashi (Professor of Zoology) (小林佐太郎)

Toyokichi Deguchi (Fisheries) (出口豊吉)

3. Chemical constituents: (化学成分)

Michiaki Ochi (Assistant Professor of Marine Products Technology) (越智通秋)

Tadashi Tamura (Assistant Professor of Fish Culture) (田村　正)

4. Meteorological observations: (気象観測)

Giichi Kawasaki (Assistant Professor of Fisheries) (川崎毅一)

5. Fishing record on the coast: (沿岸漁況記録)

Takeo Kida (Assistant Professor of Fisheries) (黄田武夫)

6. Determination of ship's position: (船位測定)

Kohei Ogaki (Captain) (大垣光平)

Ryokichi Furusaki (Chief Officer) (古崎良吉)

Tamezo Yamazaki (Second Officer) (山崎為蔵)

## 2. Observations during the Period from September 1935 to March 1936
(昭和10年9月～昭和11年3月観測)

(1) Position of stations: (観測地点)

St. Ⅰ. 41°41′20″N 140°45′40″E

St. Ⅱ. 41°38′50″N 140°48′40″E

St. Ⅲ. 41°36′10″N 140°51′40″E

Fig. 11. Map of the Tsugaru Straits showing location of stations in the observations during the period from September 1935 to March 1936

(2) Data on temperature, salinity, pH value and dissolved oxygen, and computed data on $\sigma_t$
(温度，塩分，pH価，溶存酸素記録及シグマ t 計算値記録)

Table 1. Data on temperature, salinity, $\sigma_t$, pH and dissolved oxygen in the Tsugaru Straits during the period from September 1935 to March 1936

**Observations on Sept. 15, 1935**

| Station | Time | Depth (m) | Temperature (°C) | Salinity (‰) | $\sigma_t$ | pH | Oxygen (cc/l) |
|---|---|---|---|---|---|---|---|
| I | 8:40a.m. ~9:15a.m. | 0 | 22.23 | 33.87 | 23.30 | | 6.93 |
| | | 5 | 21.71 | 33.77 | 23.36 | | 6.98 |
| | | 10 | 21.35 | 33.89 | 23.54 | | 7.10 |
| | | 15 | 21.02 | 33.93 | 23.68 | | 7.19 |
| | | 20 | 20.34 | 33.80 | 23.76 | | 7.27 |
| | | 30 | 17.54 | 33.86 | 24.50 | | 7.45 |
| | | 50 | 15.12 | 33.68 | 24.70 | | 7.40 |
| | | 100 | 12.29 | 33.53 | 25.41 | | 7.35 |
| | | 150 | 11.42 | 34.11 | 26.02 | | 7.65 |
| II | 10:05a.m. ~10:40a.m. | 0 | 22.15 | 33.80 | 23.26 | | 6.88 |
| | | 5 | 22.18 | 34.07 | 23.46 | | 6.86 |
| | | 10 | 22.99 | 34.11 | 23.26 | | 7.00 |
| | | 15 | 21.43 | 34.20 | 23.76 | | 7.39 |
| | | 20 | | 34.16 | | | 7.33 |
| | | 30 | 19.28 | 34.00 | 24.19 | | 7.46 |
| | | 50 | 18.88 | 33.53 | 23.95 | | 7.52 |
| | | 100 | 14.80 | 33.51 | 24.88 | | 7.55 |
| | | 150 | 13.47 | 33.53 | 25.17 | | 7.93 |
| | | 200 | 13.29 | 33.68 | 25.33 | | 7.64 |
| | | 250 | 11.71 | 33.68 | 25.63 | | 7.75 |
| | | 300 | 11.03 | 33.96 | 25.99 | | 7.94 |
| III | 12:55p.m. | 0 | 22.55 | 33.44 | 22.88 | | 7.09 |
| | | 5 | 22.50 | 33.49 | 22.94 | | 7.95 |
| | | 10 | 22.27 | 33.46 | 22.97 | | 7.18 |
| | | 15 | 22.21 | 33.62 | 23.11 | | 7.17 |
| | | 20 | 21.29 | 33.68 | 23.55 | | 7.17 |
| | | 30 | 20.58 | 33.98 | 23.84 | | 7.21 |
| | | 50 | 16.80 | 33.77 | 24.62 | | 7.78 |

Table 1. (Continued)

**Observations on Oct. 13, 1935**

| Station | Time | Depth (m) | Temperature (°C) | Salinity (‰) | $\sigma_t$ | pH | Oxygen (cc/l) |
|---|---|---|---|---|---|---|---|
| I | 9:35a.m. ~10:00a.m. | 0 | 21.12 | 33.26 | 23.13 | | 7.34 |
| | | 5 | 20.40 | 33.30 | 23.37 | | 7.04 |
| | | 10 | 20.33 | 33.26 | 23.35 | | 7.13 |
| | | 15 | 20.15 | 33.17 | 23.34 | | 7.16 |
| | | 20 | 20.09 | 33.30 | 23.45 | | 7.31 |
| | | 30 | 18.50 | 33.13 | 23.73 | | 7.33 |
| | | 50 | 15.85 | 33.57 | 24.69 | | 7.52 |
| | | 100 | 13.19 | 33.96 | 25.57 | | 7.58 |
| | | 150 | 12.05 | 33.89 | 25.73 | | 7.71 |
| II | 11:15a.m. ~11:40a.m. | 0 | 20.42 | 33.17 | 23.26 | | 7.29 |
| | | 5 | 20.35 | 33.13 | 23.25 | | 7.31 |
| | | 10 | 20.09 | 33.08 | 23.29 | | 7.40 |
| | | 15 | 19.96 | 33.17 | 23.38 | | 7.24 |
| | | 20 | 19.75 | 33.37 | 23.60 | | 7.35 |
| | | 30 | 20.37 | 33.37 | 23.42 | | 7.13 |
| | | 50 | 18.04 | 33.78 | 24.32 | | 7.23 |
| | | 100 | 14.95 | 33.96 | 25.19 | | 7.05 |
| | | 150 | 13.07 | 34.23 | 25.80 | | 7.54 |
| | | 200 | 12.23 | 33.96 | 25.75 | | 7.66 |
| | | 250 | 11.44 | 33.96 | 25.90 | | 7.75 |
| | | 300 | 10.97 | 34.05 | 26.05 | | 7.78 |
| III | 1:20p.m. | 0 | 20.21 | 33.17 | 23.31 | | 7.23 |
| | | 5 | 20.19 | 33.21 | 23.36 | | 7.19 |
| | | 10 | 19.41 | 33.26 | 23.60 | | 7.24 |
| | | 15 | 19.47 | 33.39 | 23.71 | | 7.32 |
| | | 20 | 19.50 | 33.35 | 23.65 | | 7.04 |
| | | 30 | 19.32 | 33.26 | 23.62 | | 7.15 |
| | | 50 | 15.61 | 33.82 | 24.94 | | 7.31 |

Table 1. (Continued)

**Observations on Nov. 10, 1935**

| Station | Time | Depth (m) | Temperature (°C) | Salinity (‰) | $\sigma_t$ | pH | Oxygen (cc/$l$) |
|---|---|---|---|---|---|---|---|
| I | 9:00a.m. ~9:25a.m. | 0 | 15.62 | | | 8.35 | 7.24 |
| | | 5 | 16.84 | | | 8.35 | 7.40 |
| | | 10 | 14.02 | | | 8.40 | 7.42 |
| | | 15 | 15.79 | | | 8.35 | 7.53 |
| | | 20 | 15.77 | | | 8.35 | 7.42 |
| | | 30 | 15.26 | | | 8.32 | 7.60 |
| | | 50 | 14.46 | | | 8.30 | 7.33 |
| | | 100 | 12.43 | | | 8.22 | 7.10 |
| | | 150 | | | | | |
| II | 11:00a.m. | 0 | 15.83 | | | 8.35 | 7.32 |
| | | 5 | 17.06 | | | 8.37 | 7.33 |
| | | 10 | 17.11 | | | 8.40 | 7.50 |
| | | 15 | 17.89 | | | 8.37 | 7.48 |
| | | 20 | 16.61 | | | 8.37 | 7.66 |
| | | 30 | 16.95 | | | 8.35 | 7.53 |
| | | 50 | 16.62 | | | 8.32 | 7.11 |
| | | 100 | 15.74 | | | 8.30 | 6.90 |
| | | 150 | 13.07 | | | 8.27 | 7.19 |
| | | 200 | 13.01 | | | 8.25 | 7.04 |
| | | 250 | | | | 8.20 | 7.29 |
| | | 300 | 11.33 | | | 8.20 | 7.51 |
| III | 1:00p.m. | 0 | 16.94 | | | 8.37 | 7.29 |
| | | 5 | 16.94 | | | 8.37 | 7.48 |
| | | 10 | 17.10 | | | 8.37 | 7.19 |
| | | 15 | 17.49 | | | 8.35 | 7.22 |
| | | 20 | 17.08 | | | 8.35 | 7.41 |
| | | 30 | 16.93 | | | 8.32 | 7.07 |
| | | 50 | 16.70 | | | 8.30 | 7.55 |

Table 1. (Continued)

**Observations on Dec. 15, 1935**

| Station | Time | Depth (m) | Temperature (°C) | Salinity (‰) | $\sigma_t$ | pH | Oxygen (cc/l) |
|---|---|---|---|---|---|---|---|
| I | 9:45a.m. ~10:10a.m. | 0 | 12.59 | 34.02 | 25.73 | 8.20 | 7.33 |
| | | 5 | 11.86 | 33.79 | 25.69 | 8.20 | 6.56 |
| | | 10 | 11.71 | 34.00 | 25.88 | 8.20 | 7.51 |
| | | 15 | 12.40 | 34.12 | 25.84 | 8.20 | 7.39 |
| | | 20 | 11.82 | 34.17 | 26.00 | 8.20 | 6.72 |
| | | 30 | 11.82 | 33.98 | 25.85 | 8.20 | 6.59 |
| | | 50 | 11.83 | 34.17 | 26.00 | 8.20 | 6.94 |
| | | 100 | 11.84 | 34.17 | 26.00 | 8.20 | 6.68 |
| | | 150 | 11.61 | 34.04 | 25.93 | 8.20 | 7.31 |
| II | 11:05a.m. ~11.35a.m. | 0 | 12.64 | 34.02 | 25.72 | 8.30 | 6.65 |
| | | 5 | 12.63 | 33.89 | 25.62 | 8.25 | 6.70 |
| | | 10 | 12.64 | 34.06 | 25.75 | 8.20 | 7.50 |
| | | 15 | 12.73 | 34.14 | 25.79 | 8.30 | 7.50 |
| | | 20 | 12.61 | 34.10 | 25.78 | 8.20 | 6.70 |
| | | 30 | 12.63 | 34.14 | 25.81 | 8.30 | 6.82 |
| | | 50 | 12.67 | 34.19 | 25.84 | 8.30 | 7.03 |
| | | 100 | 12.39 | 34.21 | 25.92 | 8.30 | 6.39 |
| | | 150 | 12.32 | 34.31 | 26.01 | 8.25 | 6.34 |
| | | 200 | 12.26 | 34.00 | 25.78 | 8.20 | 6.36 |
| | | 250 | 12.22 | 34.21 | 25.95 | 8.25 | 6.48 |
| | | 300 | 12.19 | 34.21 | 25.96 | 8.20 | 6.72 |
| III | | | | | | | |

Table 1. (Continued)

**Observations on Jan. 20, 1936**

| Station | Time | Depth (m) | Temperature (°C) | Salinity (‰) | $\sigma_t$ | pH | Oxygen (cc/l) |
|---|---|---|---|---|---|---|---|
| I | 8:40a.m. ~9:00a.m. | 0 | 8.71 | 33.95 | 26.35 | 8.15 | 7.07 |
| | | 5 | 8.78 | 34.09 | 26.46 | 8.15 | 6.88 |
| | | 10 | 8.60 | 34.17 | 26.55 | 8.15 | 7.19 |
| | | 15 | 8.69 | 34.18 | 26.54 | 8.15 | 6.94 |
| | | 20 | 8.79 | 33.90 | 26.31 | 8.20 | 6.88 |
| | | 30 | 8.72 | 33.93 | 26.34 | 8.10 | 6.91 |
| | | 50 | 8.70 | 34.11 | 26.49 | 8.15 | 6.70 |
| | | 100 | 8.48 | 34.12 | 26.53 | 8.10 | 7.39 |
| | | 150 | 8.15 | 34.13 | 26.58 | 8.10 | 8.01 |
| II | 9:45a.m. ~10:15a.m. | 0 | 9.29 | 33.91 | 26.23 | 8.17 | 7.99 |
| | | 5 | 9.35 | 33.91 | 26.22 | 8.15 | 6.66 |
| | | 10 | 9.38 | 33.88 | 26.20 | 8.17 | 6.85 |
| | | 15 | 9.21 | 33.99 | 26.31 | 8.15 | 7.03 |
| | | 20 | 9.20 | 33.97 | 26.30 | 8.15 | 6.50 |
| | | 30 | 9.05 | 33.96 | 26.31 | 8.15 | 6.85 |
| | | 50 | 9.19 | 34.12 | 26.42 | 8.15 | 7.46 |
| | | 100 | 8.84 | 34.22 | 26.55 | 8.15 | 7.60 |
| | | 150 | 8.51 | 34.27 | 26.63 | 8.12 | 7.72 |
| | | 200 | 8.45 | 33.99 | 26.43 | 8.20 | 7.13 |
| | | 250 | 8.17 | 34.19 | 26.62 | 8.15 | 7.18 |
| | | 300 | 8.04 | 34.05 | 26.54 | 8.12 | 6.21 |
| III | 10:05a.m. ~11:20a.m. | 0 | 9.23 | | | 8.15 | 8.06 |
| | | 5 | 9.32 | 34.18 | 26.45 | 8.15 | 7.46 |
| | | 10 | 9.32 | 34.25 | 26.50 | 8.10 | 7.83 |
| | | 15 | 9.27 | | | 8.15 | 6.47 |
| | | 20 | 9.18 | 34.17 | 26.47 | 8.15 | 6.48 |
| | | 30 | 9.26 | 34.14 | 26.42 | 8.15 | 7.07 |
| | | 50 | 9.24 | 34.14 | 26.42 | 8.15 | 7.55 |

Table 1. (Continued)

**Observations on Feb. 19, 1936**

| Station | Time | Depth (m) | Temperature (°C) | Salinity (‰) | $\sigma_t$ | pH | Oxygen (cc/l) |
|---|---|---|---|---|---|---|---|
| I | 8:40a.m. ~9:00a.m. | 0 | 8.32 | 33.71 | 26.22 | 8.20 | 7.58 |
| | | 5 | 8.23 | 33.61 | 26.16 | 8.15 | 7.58 |
| | | 10 | 8.28 | 33.62 | 26.17 | 8.18 | 7.20 |
| | | 15 | 8.24 | 33.95 | 26.43 | 8.20 | 8.35 |
| | | 20 | 8.26 | 33.95 | 26.43 | 8.18 | 8.04 |
| | | 30 | 8.30 | 33.93 | 26.41 | 8.20 | 7.41 |
| | | 50 | 8.18 | 34.01 | 26.49 | 8.15 | 7.33 |
| | | 100 | 8.02 | 34.14 | 26.60 | 8.20 | 7.44 |
| | | 150 | 7.73 | 34.03 | 26.56 | 8.15 | 7.46 |
| II | 10:12a.m. ~10:37a.m. | 0 | 8.40 | 33.71 | 26.22 | 8.15 | 6.81 |
| | | 5 | 8.41 | 33.91 | 26.37 | 8.15 | 6.48 |
| | | 10 | 8.34 | 34.12 | 26.55 | 8.14 | 7.72 |
| | | 15 | 8.31 | 33.97 | 26.43 | 8.15 | 8.04 |
| | | 20 | 8.41 | 33.95 | 26.40 | 8.16 | 7.86 |
| | | 30 | 8.43 | 34.01 | 26.45 | 8.16 | 8.19 |
| | | 50 | 8.41 | 34.01 | 26.45 | 8.15 | 8.02 |
| | | 100 | 8.29 | 33.95 | 26.43 | 8.15 | 8.29 |
| | | 150 | 8.24 | 33.97 | 26.45 | 8.15 | 8.24 |
| | | 200 | 8.03 | 34.24 | 26.69 | 8.15 | 7.91 |
| | | 250 | 8.02 | 34.12 | 26.59 | 8.18 | 7.94 |
| | | 300 | 7.83 | 34.06 | 26.57 | 8.18 | 7.21 |
| III | 11:30a.m. ~11.45a.m. | 0 | 8.34 | 33.91 | 26.38 | 8.15 | 7.35 |
| | | 5 | 8.35 | 34.06 | 26.50 | 8.15 | 7.41 |
| | | 10 | 8.35 | 34.05 | 26.50 | 8.15 | 7.32 |
| | | 15 | 8.33 | 33.95 | 26.42 | 8.16 | 7.95 |
| | | 20 | 8.28 | 34.09 | 26.54 | 8.16 | 7.84 |
| | | 30 | 8.42 | 34.17 | 26.57 | 8.16 | 7.47 |
| | | 50 | 8.43 | 34.05 | 26.48 | 8.16 | 7.00 |

Table 1. (Continued)

**Observations on Mar. 11, 1936**

| Station | Time | Depth (m) | Temperature (°C) | Salinity (‰) | $\sigma_t$ | pH | Oxygen (cc/*l*) |
|---|---|---|---|---|---|---|---|
| I | 8:10a.m. ~8:55a.m. | 0 | 6.69 | 34.02 | 26.71 | 8.20 | 7.03 |
| | | 5 | 6.67 | 34.00 | 26.69 | 8.20 | 7.03 |
| | | 10 | 6.72 | 34.00 | 26.68 | 8.25 | 7.03 |
| | | 15 | 6.69 | 33.91 | 26.62 | 8.20 | 7.20 |
| | | 20 | 6.68 | 34.16 | 26.80 | 8.25 | 7.33 |
| | | 30 | 6.63 | 34.09 | 26.76 | 8.25 | 7.46 |
| | | 50 | 6.69 | 33.90 | 26.61 | 8.25 | 7.58 |
| | | 100 | 6.67 | 34.01 | 26.70 | 8.25 | 7.33 |
| | | 150 | 6.82 | 34.09 | 26.73 | 8.25 | 7.32 |
| II | 9:45a.m. ~10.30a.m. | 0 | 7.63 | 34.03 | 26.51 | 8.25 | 7.27 |
| | | 5 | 7.80 | 34.03 | 26.55 | 8.20 | 7.14 |
| | | 10 | 7.72 | 33.97 | 26.52 | 8.20 | 7.39 |
| | | 15 | 7.74 | 34.12 | 26.63 | 8.25 | 6.94 |
| | | 20 | 7.70 | 34.28 | 26.76 | 8.25 | 7.78 |
| | | 30 | 7.65 | 34.16 | 26.67 | 8.20 | 7.84 |
| | | 50 | 7.28 | 34.00 | 26.60 | 8.20 | 7.90 |
| | | 100 | 6.67 | 33.85 | 26.57 | 8.20 | 7.13 |
| | | 150 | 6.77 | 33.99 | 26.67 | 8.25 | 8.23 |
| | | 200 | 6.72 | 33.87 | 26.58 | 8.20 | 8.10 |
| | | 250 | 6.67 | 33.99 | 26.68 | 8.25 | 8.29 |
| | | 300 | 6.58 | 34.14 | 26.80 | 8.25 | 7.84 |
| III | 11:30a.m. ~11:45a.m. | 0 | 7.68 | 33.81 | 26.40 | 8.25 | 7.33 |
| | | 5 | 7.65 | 33.95 | 26.52 | 8.20 | 8.03 |
| | | 10 | 7.76 | 33.83 | 26.41 | 8.25 | 7.26 |
| | | 15 | 7.75 | 33.14 | 26.65 | 8.25 | 7.14 |
| | | 20 | 7.75 | 33.14 | 26.65 | 8.25 | 7.33 |
| | | 30 | 7.65 | 34.12 | 26.64 | 8.25 | 7.65 |
| | | 50 | 7.66 | 34.03 | 26.57 | 8.25 | 7.84 |

### 3. Observations during the Period from September 1936 to March 1937
(昭和11年9月～昭和12年3月観測)

(1) Position of stations: (観測地点)

St. Ⅰ. 41°42.4′N 140°44.5′E
St. Ⅱ. 41°40.6′N 140°46.5′E
St. Ⅲ. 41°39.7′N 140°48.6′E
St. Ⅳ. 41°36.9′N 140°50.7′E
St. Ⅴ. 41°35.0′N 140°52.8′E

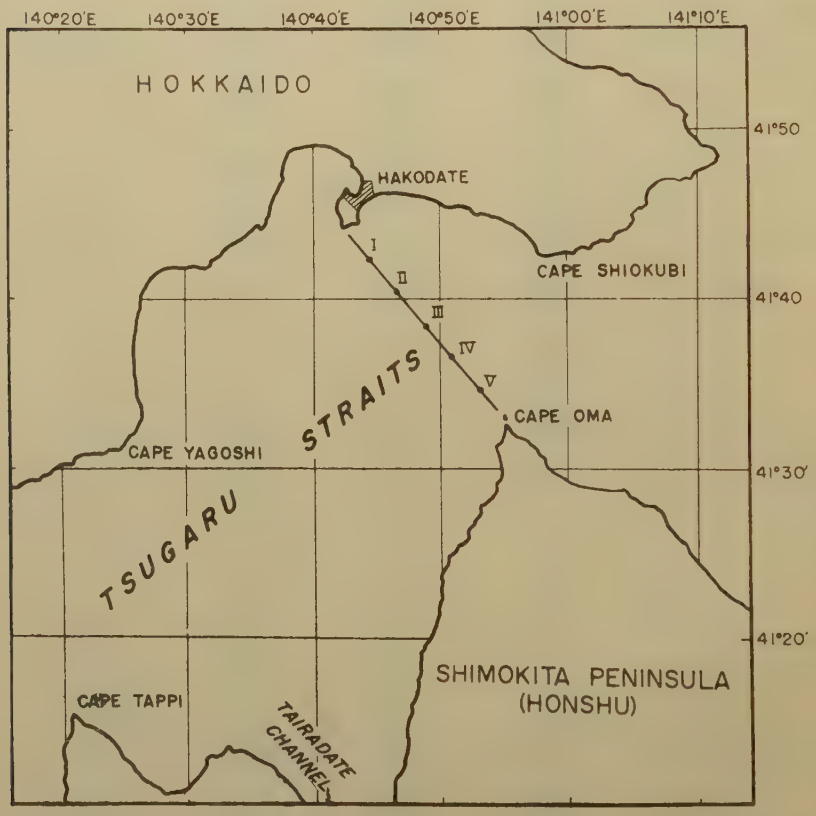



Fig. 12. Map of the Tsugaru Straits showing location of stations in the observations during the period from September 1936 to March 1937; from September 1937 to March 1938; from September 1938 to March 1939; and from September 1939 to November 1939

(2) Data on temperature, pH value and dissolved oxygen
(温度，pH価及溶存酸素記録)

Table 2. Data on temperature, pH value and dissolved oxygen in the Tsugaru Straits during the period from September 1936 to March 1937

**Observations on Sept. 18, 1936**

| Station | Time | Depth (m) | Temperature (°C) | pH | Oxygen (cc/l) |
|---|---|---|---|---|---|
| I | 8:30a.m. | 0 | 22.37 | 8.4 | 4.94 |
| | | 10 | 22.24 | 8.4 | 4.93 |
| | | 20 | 20.78 | 8.4 | 5.30 |
| | | 50 | 15.68 | 8.4 | 5.26 |
| | | 90 | 12.75 | 8.4 | 5.34 |
| II | 9:40a.m. | 0 | 23.52 | 8.4 | 4.72 |
| | | 10 | 22.65 | 8.4 | 5.36 |
| | | 20 | 22.94 | 8.4 | 5.32 |
| | | 50 | 17.28 | 8.3 | 5.28 |
| | | 100 | 15.84 | 8.3 | 5.28 |
| | | 200 | 12.49 | 8.3 | 5.11 |
| III | 10:30a.m. | 0 | 24.11 | 8.4 | 5.12 |
| | | 10 | 24.05 | 8.4 | 5.07 |
| | | 20 | 22.72 | 8.4 | 5.32 |
| | | 50 | 16.52 | 8.4 | 5.06 |
| | | 100 | 13.75 | 8.3 | 5.05 |
| | | 200 | 12.47 | 8.3 | 5.13 |
| | | 300 | 12.16 | 8.3 | 5.22 |
| IV | 12:20p.m. | 0 | 23.99 | 8.4 | 4.83 |
| | | 10 | 24.07 | 8.4 | 5.21 |
| | | 20 | 22.53 | 8.4 | 5.04 |
| | | 50 | 15.10 | 8.4 | 5.18 |
| V | 13:50p.m. | 0 | 24.08 | 8.4 | 5.78 |
| | | 10 | 23.02 | 8.4 | 6.66 |
| | | 20 | 21.33 | 8.4 | 7.42 |
| | | 30 | 21.29 | 8.4 | 6.04 |

Table 2. (Continued)

**Observations on Oct. 15, 1936**

| Station | Time | Depth (m) | Temperature (°C) | pH | Oxygen (cc/*l*) |
|---|---|---|---|---|---|
| I | 7:55a.m. | 0 | 19.47 | 8.35 | 5.18 |
| | | 10 | 19.31 | 8.35 | 5.88 |
| | | 20 | 18.81 | 8.35 | 5.76 |
| | | 50 | 17.52 | 8.25 | 5.55 |
| | | 90 | 15.88 | 8.25 | 5.03 |
| II | 8:35a.m. | 0 | 19.26 | 8.35 | 5.20 |
| | | 10 | 19.30 | 8.35 | 5.43 |
| | | 20 | 19.29 | 8.30 | 5.29 |
| | | 50 | 18.52 | 8.30 | 5.05 |
| | | 100 | 17.15 | 8.30 | 5.55 |
| | | 200 | 14.04 | 8.25 | 5.36 |
| III | 9:24a.m. | 0 | 19.86 | 8.35 | 5.14 |
| | | 10 | 19.91 | 8.35 | 5.14 |
| | | 20 | 19.83 | 8.35 | 5.14 |
| | | 50 | 19.49 | 8.25 | 5.14 |
| | | 100 | 17.30 | 8.25 | 5.38 |
| | | 200 | 16.46 | 8.25 | 5.33 |
| | | 300 | 14.74 | 8.20 | 5.32 |
| IV | 10:35a.m. | 0 | 20.11 | 8.30 | 5.10 |
| | | 10 | 20.08 | 8.30 | 5.14 |
| | | 20 | 20.10 | 8.30 | 5.38 |
| | | 50 | 19.30 | 8.30 | 5.05 |
| V | 11:17a.m. | 0 | 20.16 | 8.30 | 5.14 |
| | | 10 | 20.10 | 8.30 | 5.66 |
| | | 20 | 20.03 | 8.30 | 5.74 |
| | | 30 | 20.01 | 8.30 | 5.08 |

Table 2. (Continued)

**Observations on Nov. 16, 1936**

| Station | Time | Depth (m) | Temperature (°C) | pH | Oxygen (cc/l) |
|---|---|---|---|---|---|
| I | 8:14a.m. | 0 | 16.33 | 8.20 | 5.05 |
| | | 10 | 16.40 | 8.40 | 4.99 |
| | | 20 | 15.98 | 8.40 | 5.16 |
| | | 50 | 15.42 | 8.40 | 5.21 |
| | | 90 | 16.44 | 8.40 | 5.15 |
| II | 9:00a.m. | 0 | 16.10 | 8.40 | 5.06 |
| | | 10 | 16.19 | 8.40 | 5.02 |
| | | 20 | 16.01 | 8.40 | 5.12 |
| | | 50 | 15.47 | 8.40 | 5.07 |
| | | 100 | 16.27 | 8.40 | 5.38 |
| | | 200 | 13.80 | 8.40 | 5.53 |
| III | 10:00a.m. | 0 | 16.46 | 8.40 | 5.10 |
| | | 10 | 16.53 | 8.40 | 5.20 |
| | | 20 | 16.50 | 8.40 | 5.15 |
| | | 50 | 16.37 | 8.40 | 5.15 |
| | | 100 | 14.97 | 8.40 | 5.62 |
| | | 200 | 14.43 | 8.40 | 5.52 |
| | | 300 | 14.26 | 8.40 | 4.99 |
| IV | 11:00a.m. | 0 | 16.65 | 8.40 | 5.66 |
| | | 10 | 16.67 | 8.40 | 5.16 |
| | | 20 | 16.65 | 8.40 | 5.95 |
| | | 50 | 16.22 | 8.40 | 6.02 |
| V | 11:40a.m. | 0 | 16.66 | 8.40 | 6.48 |
| | | 10 | 16.69 | 8.40 | 6.39 |
| | | 20 | 16.70 | 8.40 | 5.96 |
| | | 30 | 16.67 | 8.40 | 5.97 |

Table 2. (Continued)

**Observations on Dec. 11, 1936**

| Station | Time | Depth (m) | Temperature (°C) | pH | Oxygen (cc/l) |
|---|---|---|---|---|---|
| I | 8:15a.m. | 0 | 14.00 | 8.40 | 6.01 |
| | | 10 | 14.05 | 8.40 | 5.86 |
| | | 20 | 13.93 | 8.30 | 5.55 |
| | | 50 | 13.66 | 8.30 | 5.35 |
| | | 90 | 13.61 | 8.40 | 5.67 |
| II | 9:00a.m. | 0 | 14.27 | 8.40 | 5.93 |
| | | 10 | 14.26 | 8.35 | 5.60 |
| | | 20 | 14.25 | 8.40 | 5.58 |
| | | 50 | 14.09 | 8.40 | 5.39 |
| | | 100 | 14.15 | 8.40 | 5.48 |
| | | 200 | 13.82 | 8.40 | 5.43 |
| III | 9:45a.m. | 0 | 14.33 | 8.30 | 5.53 |
| | | 10 | 14.25 | 8.35 | 5.51 |
| | | 20 | 14.23 | 8.40 | 6.03 |
| | | 50 | 14.14 | 8.30 | 5.34 |
| | | 100 | 14.14 | 8.40 | 5.75 |
| | | 200 | 14.06 | 8.40 | 6.44 |
| | | 300 | 14.00 | 8.40 | 5.34 |
| IV | 10:25a.m. | 0 | 14.25 | 8.40 | 6.13 |
| | | 10 | 14.26 | 8.30 | 5.99 |
| | | 20 | 14.29 | 8.30 | 6.57 |
| | | 50 | 14.27 | 8.30 | 6.20 |
| V | 11:25a.m. | 0 | 14.37 | 8.30 | 5.96 |
| | | 10 | 14.44 | 8.40 | 5.45 |
| | | 20 | 14.46 | 8.40 | 5.55 |
| | | 30 | 14.43 | 8.40 | 5.50 |

Table 2. (Continued)

**Observations on Jan. 16, 1937**

| Station | Time | Depth (m) | Temperature (°C) | pH | Oxygen (cc/*l*) |
|---|---|---|---|---|---|
| I | 9:10a.m. | 0 | 10.30 | 8.40 | 5.72 |
| | | 10 | 10.33 | 8.30 | 5.95 |
| | | 20 | 10.36 | 8.30 | 5.95 |
| | | 50 | 10.31 | 8.30 | 5.73 |
| | | 90 | 9.90 | 8.20 | 5.74 |
| II | 9:45a.m. | 0 | 11.18 | 8.20 | 5.70 |
| | | 10 | 11.17 | 8.20 | 5.71 |
| | | 20 | 11.16 | 8.20 | 5.72 |
| | | 50 | 11.07 | 8.40 | 5.73 |
| | | 100 | 10.66 | 8.20 | 5.68 |
| | | 200 | 10.04 | 8.20 | 5.81 |
| III | 10:40a.m. | 0 | 11.43 | 8.20 | 6.81 |
| | | 10 | 11.39 | 8.20 | 5.77 |
| | | 20 | 11.42 | 8.40 | 5.76 |
| | | 50 | 11.44 | 8.30 | 5.77 |
| | | 100 | 10.59 | 8.20 | 5.70 |
| | | 200 | 9.99 | 8.30 | 5.74 |
| | | 300 | 8.88 | 8.30 | 6.70 |
| IV | 11:00a.m. | 0 | 11.53 | 8.40 | 5.69 |
| | | 10 | 11.51 | 8.30 | 6.48 |
| | | 20 | 11.30 | 8.40 | 6.85 |
| | | 50 | 11.21 | 8.30 | 6.20 |
| V | 11:50a.m. | 0 | 11.50 | 8.20 | 5.65 |
| | | 10 | 11.48 | 8.30 | 5.73 |
| | | 20 | 11.48 | 8.30 | 5.75 |
| | | 30 | 11.40 | 8.40 | 5.82 |

Table 2. (Continued)

**Observations on Feb. 18, 1937**

| Station | Time | Depth (m) | Temperature (°C) | pH | Oxygen (cc/*l*) |
|---|---|---|---|---|---|
| I | 9:15a.m. | 0 | 8.34 | 8.35 | 6.75 |
| | | 10 | 8.25 | 8.30 | 6.70 |
| | | 20 | 8.32 | 8.30 | 6.93 |
| | | 50 | 7.77 | 8.40 | 6.88 |
| | | 90 | 7.03 | 8.30 | 7.23 |
| II | 9:50a.m. | 0 | 8.41 | 8.35 | 6.89 |
| | | 10 | 8.24 | 8.35 | 6.70 |
| | | 20 | 8.29 | 8.35 | 6.69 |
| | | 50 | 7.72 | 8.30 | 6.97 |
| | | 100 | 7.10 | 8.30 | 6.93 |
| | | 200 | 5.08 | 8.30 | 6.83 |
| III | 10:30a.m. | 0 | 8.40 | 8.35 | 8.22 |
| | | 10 | 8.19 | 8.40 | 7.93 |
| | | 20 | 8.12 | 8.35 | 7.60 |
| | | 50 | 7.98 | 8.40 | 7.75 |
| | | 100 | 7.49 | 8.30 | 7.11 |
| | | 200 | 5.36 | 8.30 | 7.24 |
| | | 300 | 4.69 | 8.30 | 7.00 |
| IV | 11:18a.m. | 0 | 8.50 | 8.35 | 7.10 |
| | | 10 | 8.06 | 8.30 | 6.79 |
| | | 20 | 7.96 | 8.30 | 6.60 |
| | | 50 | 7.81 | 8.35 | 6.80 |
| V | 11:45a.m. | 0 | 8.50 | 8.35 | 6.91 |
| | | 10 | 8.23 | 8.35 | 6.65 |
| | | 20 | 8.30 | 8.40 | 6.88 |
| | | 30 | 8.31 | 8.35 | 7.12 |

Table 2. (Continued)

**Observations on Mar. 20, 1937**

| Station | Time | Depth (m) | Temperature (°C) | pH | Oxygen (cc/*l*) |
|---|---|---|---|---|---|
| I | 9:30a.m. | 0 | 7.57 | 8.35 | 6.63 |
| | | 10 | 7.66 | 8.30 | 6.72 |
| | | 20 | 7.52 | 8.35 | 6.80 |
| | | 50 | 7.35 | 8.35 | 6.85 |
| | | 90 | 7.04 | 8.30 | 6.87 |
| II | 10:00a.m. | 0 | 7.70 | 8.30 | 7.02 |
| | | 10 | 7.63 | 8.30 | 6.97 |
| | | 20 | 7.63 | 8.30 | 7.61 |
| | | 50 | 7.46 | 8.35 | 6.78 |
| | | 100 | 7.27 | 8.35 | 6.29 |
| | | 200 | 7.11 | 8.35 | 6.25 |
| III | 10:40a.m. | 0 | 7.96 | 8.35 | 6.27 |
| | | 10 | 7.94 | 8.35 | 6.16 |
| | | 20 | 7.87 | 8.35 | 7.51 |
| | | 50 | 7.87 | 8.30 | 6.55 |
| | | 100 | 7.85 | 8.30 | 6.64 |
| | | 200 | 7.64 | 8.30 | 7.51 |
| | | 300 | 7.63 | 8.30 | 7.54 |
| IV | 11:30a.m. | 0 | 7.94 | 8.30 | 7.37 |
| | | 10 | 7.93 | 8.30 | 6.41 |
| | | 20 | 7.93 | 8.30 | 6.95 |
| | | 50 | 7.91 | 8.30 | 6.92 |
| V | 12:00a.m. | 0 | 7.77 | 8.30 | 6.98 |
| | | 10 | 7.71 | 8.30 | 6.46 |
| | | 20 | 7.66 | 8.30 | 6.13 |
| | | 30 | 7.63 | 8.15 | 6.26 |

## 4. Observations during the Period from September 1937 to March 1938; from September 1938 to March 1939; and from September 1939 to November 1939

(昭和12年9月～昭和14年11月観測)

(1) Position of stations: (観測地点)

St. Ⅰ. 41°42.4′N 140°44.5′E
St. Ⅱ. 41°40.6′N 140°46.5′E
St. Ⅲ. 41°39.7′N 140°48.6′E
St. Ⅳ. 41°36.9′N 140°50.7′E
St. Ⅴ. 41°35.0′N 140°52.8′E

(2) Data on temperature (温度記録)

Table 3. Data on temperature in the Tsugaru Straits during the period from September 1937 to March 1938

| Station | Depth (m) | Temperature (°C) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1937 Sept. 19 | 1937 Oct. 14 | 1937 Nov. 12 | 1937 Dec. 15 | 1938 Jan. 15 | 1938 Feb. 21 | 1938 Mar. 13 |
| I | 0 | 21.90 | 19.38 | 17.24 | 13.35 | 10.44 | 8.11 | 6.01 |
| | 10 | 19.17 | 19.48 | 17.03 | 13.39 | 10.41 | 8.13 | 6.22 |
| | 20 | 21.51 | 19.19 | 16.40 | 13.25 | 10.42 | 7.92 | 6.86 |
| | 50 | 21.74 | 16.64 | 14.24 | 13.16 | 10.43 | 7.78 | 7.00 |
| | 90 | 21.76 | 16.30 | 12.38 | 13.20 | 11.06 | 7.72 | 6.54 |
| II | 0 | 21.48 | 18.21 | 17.65 | 13.70 | 10.72 | 8.54 | 7.10 |
| | 10 | 21.46 | 18.20 | 17.69 | 13.69 | 10.66 | 8.54 | 7.13 |
| | 20 | 21.30 | 17.95 | 17.50 | 13.63 | 10.69 | 8.48 | 7.10 |
| | 50 | 18.68 | 16.30 | 16.35 | | 10.66 | 8.54 | 6.88 |
| | 100 | 12.15 | 15.64 | 14.99 | 13.37 | 10.53 | 8.35 | 6.43 |
| | 200 | 11.00 | 12.77 | 12.80 | 13.18 | 10.46 | | 5.32 |
| III | 0 | 21.45 | 20.47 | 18.03 | 13.87 | 10.81 | 8.53 | 7.61 |
| | 10 | 21.42 | 20.44 | 17.75 | 13.85 | 10.79 | 8.60 | 7.55 |
| | 20 | 21.81 | 20.02 | 17.60 | 13.84 | 10.79 | 8.50 | 7.50 |
| | 50 | 18.84 | 16.80 | 16.09 | 13.18 | 10.88 | 8.61 | 6.71 |
| | 100 | 12.62 | 11.98 | 14.28 | 13.25 | 10.79 | 8.52 | 6.72 |
| | 200 | 11.86 | 13.44 | 15.87 | 12.83 | 10.77 | 8.31 | 5.89 |
| | 300 | 9.84 | 12.47 | 15.05 | 12.77 | 10.75 | 8.04 | 6.55 |
| IV | 0 | 21.54 | 20.46 | 18.00 | 13.97 | 10.99 | 8.51 | 7.57 |
| | 10 | 21.23 | 20.50 | 17.98 | 13.92 | 10.93 | 8.64 | 7.53 |
| | 25 | 19.33 | 20.45 | 17.77 | 13.93 | 10.98 | 8.52 | 7.23 |
| | 50 | 12.75 | 19.67 | 16.03 | 13.65 | 11.88 | 6.78 | 7.03 |
| V | 0 | 21.60 | 19.67 | 18.03 | 13.98 | 10.98 | 8.58 | 7.57 |
| | 10 | 21.21 | 20.30 | 17.93 | 13.97 | 10.95 | 8.59 | 7.53 |
| | 20 | 14.84 | 20.45 | 17.78 | 13.97 | 10.95 | 8.53 | 7.30 |
| | 30 | 14.48 | 20.37 | 18.43 | 13.84 | 11.86 | 8.52 | 7.13 |

Table. 4. Data on temperature in the Tsugaru Straits during the period from September 1938 to March 1939

| Station | Depth (m) | Temperature (°C) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1938 Sept. 17 | 1938 Oct. 13 | 1938 Nov. 17 | 1938 Dec. 17 | 1939 Jan. 18 | 1939 Feb. 16 | 1939 Mar. 10 |
| I | 0 | 21.72 | 19.30 | 15.70 | 11.00 | 8.09 | 7.30 | 6.00 |
| | 10 | 21.09 | 18.65 | 15.70 | 11.30 | 8.10 | 7.40 | 7.02 |
| | 20 | 21.52 | 18.42 | 15.65 | 11.21 | 8.10 | 7.50 | 7.08 |
| | 50 | 15.63 | 15.69 | 15.75 | 11.20 | 8.00 | 7.49 | 6.80 |
| | 90 | 14.22 | 13.59 | 14.24 | 11.18 | 8.00 | 7.35 | 6.00 |
| II | 0 | 22.74 | 19.45 | 16.45 | 12.30 | 8.00 | 7.50 | 7.80 |
| | 10 | 22.86 | 19.33 | 16.39 | 12.60 | 8.70 | 7.90 | 7.85 |
| | 20 | 21.40 | 18.94 | 16.11 | 12.39 | 8.69 | 7.85 | 7.60 |
| | 50 | 17.38 | 17.62 | 15.76 | 11.75 | 8.61 | 7.95 | 7.02 |
| | 100 | 10.40 | 14.41 | 14.35 | 10.72 | 8.55 | 7.21 | 6.40 |
| | 200 | | 12.70 | 13.30 | 9.90 | 8.10 | 7.51 | 5.97 |
| III | 0 | 23.57 | 20.34 | 16.53 | 12.30 | 9.20 | 7.70 | 7.60 |
| | 10 | 23.38 | 20.10 | 16.49 | 12.61 | 9.38 | 7.95 | 7.87 |
| | 20 | 22.30 | 19.74 | 16.35 | 12.62 | 9.32 | 7.95 | 7.31 |
| | 50 | 15.82 | 17.77 | 16.01 | 12.49 | 9.30 | 8.00 | 6.90 |
| | 100 | 14.29 | 15.58 | 14.09 | 12.30 | 8.85 | 7.91 | 6.90 |
| | 200 | 14.01 | 14.85 | 13.40 | 11.70 | 8.49 | 7.75 | 6.85 |
| | 300 | | 12.80 | 12.37 | 10.21 | 8.40 | 7.75 | 6.30 |
| IV | 0 | 23.69 | 20.39 | 16.50 | 12.40 | 9.10 | | 8.00 |
| | 10 | 23.57 | 20.22 | 16.50 | 12.83 | 9.40 | | 7.90 |
| | 20 | 22.88 | 19.55 | 16.41 | 12.78 | 9.30 | | 7.75 |
| | 50 | | 17.50 | 16.24 | 12.61 | 9.25 | | 7.00 |
| V | 0 | 23.21 | 20.16 | 16.50 | 12.20 | 9.16 | | 8.00 |
| | 10 | 23.26 | 19.83 | 16.79 | 12.82 | 9.40 | | 7.60 |
| | 20 | 21.02 | 19.72 | 16.40 | 12.75 | 9.35 | | 7.45 |
| | 30 | 16.90 | 19.55 | 16.48 | 12.82 | 9.34 | | 7.92 |

Table 5. Data on temperature in the Tsugaru Straits during the period from September 1939 to November 1939

| Station | Depth (m) | Temperature (°C) | | |
|---|---|---|---|---|
| | | 1939 Sept. 16 | 1939 Oct. 19 | 1939 Nov. 18 |
| I | 0 | 22.80 | 19.60 | 15.62 |
| | 10 | 22.58 | 19.66 | 15.51 |
| | 20 | 21.40 | 18.97 | 15.30 |
| | 50 | 16.00 | 16.05 | 14.34 |
| | 90 | 12.05 | 13.39 | |
| II | 0 | 24.40 | 19.28 | 17.09 |
| | 10 | 23.45 | 19.30 | 17.00 |
| | 20 | 23.15 | 18.90 | 16.50 |
| | 50 | 19.87 | 18.02 | 15.60 |
| | 100 | 13.90 | 13.62 | |
| | 200 | 11.58 | 10.85 | 13.57 |
| III | 0 | 25.21 | 19.89 | 17.29 |
| | 10 | 25.20 | 19.84 | 17.28 |
| | 20 | 24.51 | 19.70 | 16.65 |
| | 50 | 20.80 | 18.21 | 15.81 |
| | 100 | 17.20 | 15.11 | 15.01 |
| | 200 | 13.28 | 13.82 | 13.00 |
| | 300 | 12.55 | 12.10 | 12.27 |
| IV | 0 | 25.05 | 19.89 | 17.37 |
| | 10 | 24.55 | 19.70 | 17.15 |
| | 20 | 24.21 | 18.81 | 16.20 |
| | 50 | 18.81 | 17.05 | 16.05 |
| V | 0 | 25.33 | 19.13 | 17.08 |
| | 10 | 24.71 | 19.20 | 17.00 |
| | 20 | 22.92 | 18.60 | 17.00 |
| | 30 | 21.69 | 19.28 | 16.85 |

II

# THE "OSHORO MARU" CRUISE 45 TO THE SOUTH CHINA SEA IN NOVEMBER - DECEMBER 1959

# おしよろ丸第45次航海
# 昭和34年11月～12月南支那海

## 1. Cruise Report
（航海報告）

| | | |
|---|---|---|
| Departure from Hakodate | Nov. 4 | （函館出港） |
| Arrival in Tokyo | Nov. 7 | （東京入港） |
| Departure from Tokyo | Nov. 11 | （東京出港） |
| Arrival in Shimonoseki via Inland Sea | Nov. 15 | （下関入港） |
| Departure from Shimonoseki | Nov. 18 | （下関出港） |
| Stopped off Nagasaki | Nov. 19 | （長崎沖仮泊） |
| Passed Balintan Channel | Nov. 23 | （バリンタン海峡通過） |
| Arrival in Manila, Philippines | Nov. 26 | （マニラ入港） |
| Departure from Manila | Dec. 1 | （マニラ出港） |
| Passed Bashi Channel | Dec. 3 | （バシー海峡通過） |
| Arrival in Keelung, Taiwan | Dec. 5 | （基隆入港） |
| Departure from Keelung | Dec. 10 | （基隆出港） |
| Trawling in East China Sea | Dec. 11–14 | （東支那海トロール漁業） |
| Arrival in Kagoshima | Dec. 17 | （鹿児島入港） |
| Departure from Kagoshima | Dec. 20 | （鹿児島出港） |
| Arrival in Misaki | Dec. 23 | （三崎入港） |
| Departure from Misaki | Dec. 23 | （三崎出港） |
| Returned to Hakodate | Dec. 26 | （函館帰港） |
| Covered 5574 miles in total, 32 days at sea, 21 days in ports | | （総航程5574浬，航海日数32日 在港日数21日） |

## 2. Vessel Personnel
（乗 船 者）

| | | | |
|---|---|---|---|
| Captain:（船長） | Takeji Fujii | | （藤 井 武 治） |
| Crew:（乗組員） | | | |
| Chief Officer | Shigeo Abe | （一等航海士 | 阿 部 茂 夫） |
| First Officer | Shoji Saito | （次席一等航海士 | 斎 藤 昭 二） |
| Second Officer | Kiyoshi Masuda | （二等航海士 | 増 田 紀 義） |
| Third Officer | Shigekatsu Nakane | （三等航海士 | 中 根 重 勝） |
| Chief Engineer | Shoichi Tomisawa | （機 関 長 | 富 沢 正 一） |
| First Engineer | Kenzo Omi | （一等機関士 | 尾 見 健 三） |
| Second Engineer | Ichiro Kataoka | （二等機関士 | 片 岡 一 郎） |
| Third Engineer | Tetsusaburo Inomata | （三等機関士 | 猪 股 鉄三郎） |
| Chief Wireless Operator | Toshio Kasao | （首席通信士 | 笹 尾 俊 雄） |
| Junior Wireless Operator | Mitsuo Kurotori | （次席通信士 | 黒 鳥 満 雄） |
| Purser | Akira Togashi | （事 務 長 | 富 樫 章） |
| and 23 men | | | |
| Student Adviser:（指導教官） | | | |
| Assistant Professor | Motokazu Ueno | | （助教授 上野元一） |
| Research Staff:（調査員） | | | |
| Professor | Sigeru Motoda (Productivity). Disembarked at Shimonoseki | | （教授 元田茂 生産力） |
| Assistant Professor | Teruyoshi Kawamura (Productivity) | | （助教授 川村輝良 生産力） |
| Assistant Professor | Rihei Kawashima (Wave and ship's motion). Disembarked at Shimonoseki | | （助教授 川島利兵衛 波浪及船体動揺） |
| Research Assistant | Yasuhito Inaba (Ship's motion). Embarked at Shimonoseki | | （助手 稲葉恭人 船体動揺） |
| Cadets:（実習生） | | | |
| Thirty-one cadets of Undergraduate Course of Pelagic Fishery | | | （遠洋漁業学科学生 31名） |

A total of 68 persons (excluding two persons who disembarked at Shimonoseki)
（総員68名但し下関下船者２名を除く）

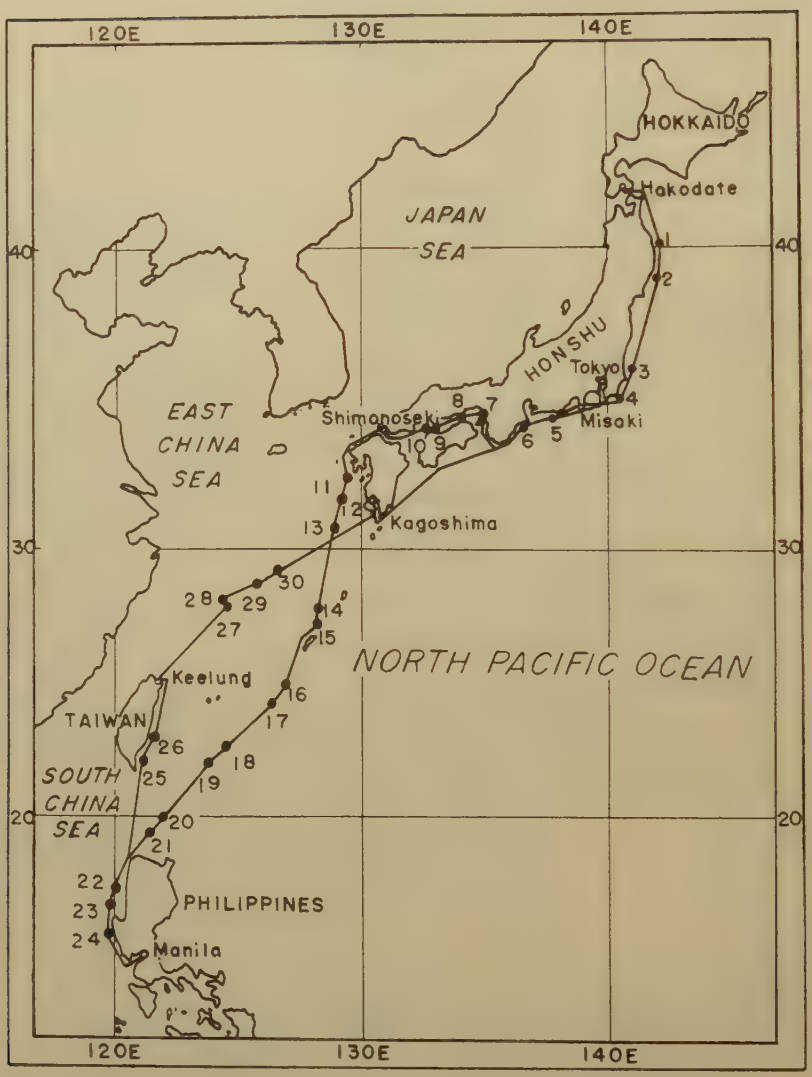



Fig. 13. Track and carbon-14 productivity stations in the "Oshoro Maru" Cruise 45 to the South China Sea in November-December 1959

## 3. Items of Observations and Procedure at Sea
(調査項目及海上作業)

Meteorological observation: (気象観測)

Every three-hour interval, covering the whole course. Data are not presented here in order to save the printing cost; they will gladly be supplied by direct communication upon request.

Sampling of the surface water for measurement of radio-activity: (放射能測定用表面水採水)

A liter of the surface water was sampled at 10 stations.

Primary production measurement: (基礎生産力測定)

Carbon-fourteen experiments and phytoplankton cell count on the surface samples were performed at 30 stations.

Trawling: (トロール)

Trawling was carried out in the East China Sea. Catch was not recorded.

## 4. Data on Radio-Activity of Natural Sea Water
(自然海水放射能記録)

A liter of water was dipped with a plastic bucket from the sea surface at 10 stations, and brought to the University by keeping in plastic bottles.

After returning from the cruise sample water was sent to Dr. H. Kawahara in the Chemical Laboratory, Otaru College of Commerce, in Otaru.

The method employed for activity measurement was based on "Japan Fisheries Agency, Division of Research: Report on the studies on the influence of nuclear explosion test in the Bikini area. No. 1, p. 17 (1955)."

Radiation Counter Type R-C 55 made by Shibata Scientific Instrument Manufacturing Co., Ltd. was used.

Sampling was made by T. Kawamura.

This work was supported in part by a grant from the Hokkaido Prefectural Office.

Counting was made by H. Kawahara and K. Abe at the Chemical Laboratory in the Otaru College of Commerce.

Table 6. Data on radio-activity of natural sea water in the "Oshoro Maru" cruise 45 to the South China Sea in November–December 1959

| No. of sample | Position | Time of sampling | | Analytical result of sample water | | | | Radio-activity of sample water (Mean background: 29 cpm) | |
|---|---|---|---|---|---|---|---|---|---|
| | | Ship's date | Ship's time | $d^{20}$ | Chlorinity | Chlorosity | Salinity | Raw count (cpm) | Net count (cpm) |
| 1 | 34°24′N 137°31′E | Nov. 12 | 0630 | 1.02427 | 18.65$_3$ | 19.10$_6$ | 33.69$_9$ | 28.9 | −0.1 |
| 2 | 32°27′N 129°33′E | 19 | 0550 | 1.02429 | 18.78$_0$ | 19.23$_6$ | 33.92$_8$ | 27.4 | −1.6 |
| 3 | 25°03′N 127°01′E | 22 | 0550 | 1.02479 | 18.87$_6$ | 19.33$_4$ | 34.10$_1$ | 29.7 | +0.7 |
| 4 | 17°12′N 120°01′E | 25 | 0550 | 1.02379 | 18.33$_9$ | 18.77$_5$ | 33.13$_2$ | 28.3 | −0.7 |
| 5 | 22°17′N 121°13′E | Dec. 4 | 0545 | 1.02444 | 18.68$_5$ | 19.14$_2$ | 33.75$_6$ | 28.1 | −0.9 |
| 6 | 27°53′N 124°32′E | 12 | 0555 | 1.02461 | 18.82$_4$ | 19.28$_7$ | 34.00$_7$ | 28.4 | −0.6 |
| 7 | 28°41′N 125°46′E | 15 | 0555 | 1.02438 | 18.46$_5$ | 19.91$_5$ | 33.35$_9$ | 27.8 | −1.2 |
| 8 | 33°00′N 133°45′E | 21 | 1320 | 1.02450 | 18.80$_8$ | 19.26$_7$ | 33.97$_8$ | 28.1 | −0.9 |
| 9 | 38°23′N 141°40′E | 24 | 1600 | 1.02432 | 18.74$_2$ | 19.19$_8$ | 33.85$_9$ | 28.6 | −0.4 |
| 10 | 41°20′N 141°31′E | 25 | 1400 | 1.02409 | 18.43$_2$ | 18.87$_6$ | 33.30$_0$ | 29.1 | +0.1 |

## 5. Data on Phytoplankton Standing Crop
（植物プランクトン現存量記録）

The phytoplankton standing crop was measured by means of direct cell count.

One hundred mililiters of surface water were dipped at 30 stations and preserved by adding formalin.

The sampling of water, the counting of cells and observation on dominant forms were made by T. Kawamura.

Table 7. Data on cell number of phytoplankton in the "Oshoro Maru" cruise 45 to the South China Sea in November–December 1959

| Station (Fig.13) | Position | Ship's date | Ship's time | Cell number/$m^3$ of surface water | Dominant species |
|---|---|---|---|---|---|
| 1 | 39°56′N 142°02′E | Nov. 5 | 0550 | $504\times10^3$ | *Thalassionema nitzschioides* |
| 2 | 38°53′N 141°55′E | 5 | 1145 | $2446\times10^3$ | *Skeletonema costatum* |
| 3 | 36°00′N 140°58′E | 6 | 0555 | $1786\times10^3$ | *Thalassionema nitzschioides* |
| 4 | 35°07′N 140°26′E | 6 | 1150 | $540\times10^3$ | *Chaetoceros decipiens* |
| 5 | 34°25′N 137°36′E | 12 | 0550 | $5160\times10^3$ | *Nitzschia seriata* |
| 6 | 34°06′N 136°44′E | 12 | 1150 | $4624\times10^3$ | *Skeletonema costatum* |
| 7 | 34°27′N 135°02′E | 13 | 0550 | $1349000\times10^3$ | *Skeletonema costatum* |
| 8 | 34°26′N 134°06′E | 13 | 1150 | $6240\times10^3$ | *Skeletonema costatum* |
| 9 | 34°04′N 133°01′E | 14 | 0555 | $9960\times10^3$ | *Melosira sulcata* |
| 10 | 34°04′N 132°49′E | 14 | 1150 | $6303\times10^3$ | *Melosira sulcata* |
| 11 | 32°27′N 129°33′E | 19 | 0550 | $37934\times10^3$ | *Nitzschia seriata* |
| 12 | 31°33′N 129°13′E | 20 | 0540 | $11923\times10^3$ | *Nitzschia seriata* |
| 13 | 30°40′N 128°53′E | 20 | 1150 | $660\times10^3$ | *Nitzschia seriata* |
| 14 | 28°06′N 128°11′E | 21 | 0550 | $322\times10^3$ | *Nitzschia seriata* |
| 15 | 27°16′N 128°26′E | 21 | 1155 | $1860\times10^3$ | *Achnanthes longipes* |
| 16 | 25°03′N 127°01′E | 22 | 0555 | $920\times10^3$ | *Skeletonema costatum* |
| 17 | 24°26′N 126°27′E | 22 | 1155 | $224\times10^3$ | *Rhizosolenia hebetata* |
| 18 | 22°44′N 124°33′E | 23 | 0555 | $280\times10^3$ | *Rhizosolenia setigera* |
| 19 | 22°10′N 123°53′E | 23 | 1200 | $128\times10^3$ | *Syracosphaera brasiliensis* |
| 20 | 20°10′N 121°54′E | 24 | 0555 | $128\times10^3$ | *Syracosphaera brasiliensis* |

Table 7. (Continued)

| Station (Fig. 13) | Position | Ship's date | Ship's time | Cell number/$m^3$ of surface water | Dominant species |
|---|---|---|---|---|---|
| 21 | 19°33′ N 121°19′ E | Nov. 24 | 1200 | $16690\times10^3$ | *Nitzschia seriata* |
| 22 | 17°12′ N 120°01′ E | 25 | 0555 | $2818\times10^3$ | *Thalassionema nitzschioides* |
| 23 | 16°35′ N 119°48′ E | 25 | 1100 | $4620\times10^3$ | *Trichodesmium eruthraeum* |
| 24 | 15°33′ N 119°46′ E | 25 | 1815 | $640\times10^3$ | *Bacteriastrum hyalinum* |
| 25 | 22°17′ N 121°13′ E | Dec. 4 | 0545 | $6730\times10^3$ | *Chaetoceros curvisetus* |
| 26 | 23°10′ N 121°33′ E | 4 | 1155 | $720\times10^3$ | *Chaetoceros decipiens* |
| 27 | 27°53′ N 124°32′ E | 12 | 0555 | $30573\times10^3$ | *Chaetoceros compressus* |
| 28 | 27°56′ N 124°27′ E | 12 | 1150 | $31200\times10^3$ | *Thalassionema nitzschioides* |
| 29 | 28°41′ N 125°46′ E | 15 | 0555 | $4050\times10^3$ | *Thalassionema nitzschioides* |
| 30 | 29°06′ N 126°32′ E | 15 | 1235 | $2444\times10^3$ | *Thalassionema nitzschioides* |

## 6. Data on Phytoplankton Photosynthetic Activity
(植物プランクトン光合成活動度記録)

All procedures of C-14 method were conducted under instructions given by M. S. Doty and M. Oguri (1958, *Rapp. et Proc.-Verb.*, Vol. 144, pp. 47-55).

Experiments were carried out at 15 stations in the morning and 15 stations in the afternoon.

At about 5.50 a.m. and at about 11.50 a.m. (by local time) about two liters of water were sampled from the sea surface at the bow with a plastic bucket. The sample water was poured into two light bottles (unpainted) and one dark bottle (painted with black enamel), each about 270 cc in capacity.

Two mililiters of sodium carbonate solution of carbon fourteen radioactive isotope, $4.99 \times 10^6$ counts per minutes, were added to each bottle.

These three bottles were placed in an incubating box kept at constant illumination and temperature in the laboratory on board. This box was 66 cm long, 36 cm wide and 22 cm deep, and installed with three rows of illuminators. Between the illuminators two rows of narrow plastic tanks were put inside, in which experimental bottles could be set.

Each of three rows of illuminators was composed of two cool white fluorescent tubes, each 20 W turned on by A. C. 100 V, arranged one above the other. Each experimental bottle received an illumination of about 1500-2000 foot-candles (according to the description by Doty).

Water introduced from the Donkey pump of the hull circulated inside the narrow plastic tanks, keeping the experimental bottles almost at the same temperature as the water of sea surface.

Incubation lasted from 6.00 a.m. to 12.00 a.m. for morning samples and from 1.00 p.m. to 6.00 p.m. for afternoon samples (taken at about 11.50 a.m.)

After exposure to the light was completed, the sample water in the bottles was passed through a milipore filter by means of an aspiration filtering apparatus. Then 0.001N hydrochloric acid in 35‰ NaCl water, and after that, filtered sea water were passed through the filter.

Phytoplankton retained on the milipore filter, which had absorbed carbon fourteen isotope corresponding to their assimilation activity, were dried out and stored in a desiccator to return to the University.

The above experimental procedures on board were made by T. Kawamura.

The dried filters were sent to M.S. Doty for counting the radioactivity at his laboratory at the University of Hawaii.

The experiment kit, the sodium carbonate solution of carbon fourteen sealed in ampoules and milipore filters were supplied by the Atomic Energy Comission of the United States through the courtesy of Dr. Maxwell S. Doty, Department of Botany, University of Hawaii, Honolulu, Hawaii.

A part of expenses for this study was supplied by UNESCO Japan National Committee.

Table 8. Data on phytoplankton photosynthetic activity in the "Oshoro Maru"

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 1 | 39°56′ N 142°02′ E | Nov. 5 | 0555 | 0605～1205 | L | 5101 | 4804/ 3 |
| | | | | | L | 5102 | 4289/ 3 |
| | | | | | D | 5103 | 320/10 |
| 2 | 38°53′ N 141°55′ E | 5 | 1145 | 1200～1800 | L | 5104 | 11211/ 3 |
| | | | | | L | 5105 | 10186/ 3 |
| | | | | | D | 5106 | 440/10 |
| 3 | 36°00′ N 140°58′ E | 6 | 0553 | 0600～1200 | L | 5107 | 9623/ 3 |
| | | | | | L | 5108 | 9626/ 3 |
| | | | | | D | 5109 | 422/10 |
| 4 | 35°07′ N 140°26′ E | 6 | 1150 | 1200～1800 | L | 5110 | 6557/ 3 |
| | | | | | L | 5111 | 5964/ 3 |
| | | | | | D | 5112 | 415/ 8 |
| 5 | 34°25′ N 137°36′ E | 12 | 0550 | 0605～1205 | L | 5113 | 907/10 |
| | | | | | L | 5114 | 5295/ 3 |
| | | | | | D | 5115 | 335/10 |
| 6 | 34°06′ N 136°44′ E | 12 | 1155 | 1200～1800 | L | 5116 | 15587/ 3 |
| | | | | | L | 5117 | 14768/ 3 |
| | | | | | D | 5118 | 427/10 |
| 7 | 34°27′ N 135°02′ E | 13 | 0550 | 0600～1200 | L | 5119 | 71620/ 3 |
| | | | | | L | 5120 | 66651/ 3 |
| | | | | | D | 5121 | 607/ 5 |
| 8 | 34°26′ N 134°06′ E | 13 | 1150 | 1200～1800 | L | 5122 | 23173/ 3 |
| | | | | | L | 5123 | 29566/ 3 |
| | | | | | D | 5124 | 442/10 |
| 9 | 34°04′ N 133°01′ E | 14 | 0550 | 0600～1200 | L | 5125 | 18555/ 3 |
| | | | | | L | 5126 | 19154/ 3 |
| | | | | | D | 5127 | 512/10 |
| 10 | 34°04′ N 132°49′ E | 14 | 1150 | 1200～1800 | L | 5128 | 17255/ 3 |
| | | | | | L | 5129 | 19881/ 3 |
| | | | | | D | 5130 | 528/10 |

cruise 45 to the South China Sea in November–December 1959

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Average counts/m | Time of incubation | Light minus dark | mgC/hr/m$^3$, |
|---|---|---|---|---|---|---|---|
| 122992 | 4589 | 1530 | 1510 | | | | |
| | 4097 | 1366 | 1346 | 1428 | 6 | 1417 | 1.162 |
| 120943 | 311 | 31 | 11 | | | | |
| | 10892 | 3631 | 3611 | | | | |
| 122820 | 9745 | 3248 | 3228 | 3420 | 6 | 3398 | 2.786 |
| | 421 | 42 | 22 | | | | |
| 121995 | 9268 | 3089 | 3067 | | | | |
| | 9560 | 3187 | 3165 | 3116 | 6 | 3100 | 2.541 |
| 131865 | 376 | 38 | 16 | | | | |
| 120451 | 6396 | 2132 | 2112 | | | | |
| | 5818 | 1939 | 1919 | 2016 | 6 | 1985 | 1.627 |
| 120299 | 405 | 51 | 31 | | | | |
| 120299 | 886 | 89 | 69 | | | 56 | 0.046 |
| | 5169 | 1723 | 1703 | — | 6 | 1690 | 1.385 |
| 120355 | 327 | 33 | 13 | | | | |
| 119222 | 15362 | 5121 | 5101 | | | | |
| 119906 | 14472 | 4824 | 4804 | 4953 | 6 | 4931 | 4.042 |
| 119222 | 421 | 42 | 22 | | | | |
| 119906 | 70183 | 23394 | 23374 | | | | |
| 117464 | 66671 | 22224 | 22204 | 22789 | 6 | 22688 | 18.600 |
| | 607 | 121 | 101 | | | | |
| 114570 | 23766 | 7922 | 7902 | | | | |
| 122913 | 28264 | 9421 | 9401 | 8652 | 6 | 8627 | 7.073 |
| 114570 | 453 | 45 | 25 | | | | |
| | 17713 | 5904 | 5884 | | | | |
| 123085 | 18285 | 6095 | 6075 | 5980 | 6 | 5951 | 4.879 |
| | 489 | 49 | 29 | | | | |
| 123150 | 16463 | 5488 | 5468 | | | | |
| | 18957 | 6319 | 6299 | 5884 | 6 | 5854 | 4.799 |
| 123225 | 503 | 50 | 30 | | | | |

Table 8.

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 11 | 32°27′N 129°33′E | Nov. 19 | 0550 | 0600～1200 | L | 5151 | 13455/ 5 |
| | | | | | L | 5152 | 13735/ 5 |
| | | | | | D | 5153 | 485/10 |
| 12 | 31°33′N 129°13′E | 20 | 0545 | 0600～1200 | L | 5154 | 11469/10 |
| | | | | | L | 5155 | 12505/ 5 |
| | | | | | D | 5156 | 702/10 |
| 13 | 30°40′N 128°53′E | 20 | 1150 | 1203～1803 | L | 5157 | 8141/ 5 |
| | | | | | L | 5158 | 8971/ 5 |
| | | | | | D | 5159 | 715/10 |
| 14 | 28°06′N 128°11′E | 21 | 0550 | 0600～1200 | L | 5160 | 4224/ 5 |
| | | | | | L | 5161 | 4696/ 5 |
| | | | | | D | 5162 | 468/ 5 |
| 15 | 27°16′N 128°26′E | 21 | 1155 | 1200～1800 | L | 5163 | 7136/ 5 |
| | | | | | L | 5164 | 7281/ 5 |
| | | | | | D | 5165 | 497/10 |
| 16 | 25°03′N 127°01′E | 22 | 0555 | 0603～1203 | L | 5166 | 3400/ 5 |
| | | | | | L | 5167 | 3078/ 5 |
| | | | | | D | 5168 | 567/10 |
| 17 | 24°26′N 126°27′E | 22 | 1155 | 1203～1803 | L | 5169 | 3113/ 5 |
| | | | | | L | 5170 | 5818/ 5 |
| | | | | | D | 5171 | 713/10 |
| 18 | 22°44′N 124°33′E | 23 | 0550 | 0600～1200 | L | 5172 | 5913/ 5 |
| | | | | | L | 5173 | 1376/ 5 |
| | | | | | D | 5174 | 1344/10 |
| 19 | 22°10′N 123°53′E | 23 | 1200 | 1205～1805 | L | 5175 | 369/ 5 |
| | | | | | L | 5176 | 796/ 5 |
| | | | | | D | 5177 | 1605/ 5 |
| 20 | 20°10′N 121°54′E | 24 | 0550 | 0600～1200 | L | 5178 | 1892/ 5 |
| | | | | | L | 5179 | 2127/ 5 |
| | | | | | D | 5180 | 492/ 5 |

(Continued)

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Average counts/m | Time of incubation | Light minus dark | mgC/hr/m$^3$ |
|---|---|---|---|---|---|---|---|
| 100670 | 15704 | 3141 | 3122 | 3155 | 6 | 3118 | 2.557 |
| | 16031 | 3206 | 3187 | | | | |
| 101468 | 562 | 56 | 37 | | | | |
| 117851 | 13279 | 1328 | 1309 | — | 6 | 1265 | 1.037 |
| | 12468 | 2494 | 2468 | | | 2424 | 1.988 |
| | 700 | 70 | 44 | | | | |
| 116909 | 8182 | 1628 | 1602 | 1690 | 6 | 1644 | 1.348 |
| | 9016 | 1803 | 1777 | | | | |
| 117039 | 718 | 72 | 46 | | | | |
| 116737 | 4241 | 848 | 822 | 871 | 6 | 813 | 0.667 |
| | 4727 | 945 | 919 | | | | |
| | 471 | 84 | 58 | | | | |
| 117611 | 7129 | 1426 | 1400 | 1415 | 6 | 1391 | 1.141 |
| | 7274 | 1455 | 1429 | | | | |
| | 501 | 50 | 24 | | | | |
| 116564 | 3427 | 685 | 659 | 631 | 6 | 599 | 0.491 |
| | 3139 | 628 | 602 | | | | |
| 115216 | 578 | 58 | 32 | | | | |
| 116403 | 3142 | 628 | 602 | — | 6 | 556 | 0.456 |
| | 5864 | 1172 | 1146 | | | 1100 | 0.902 |
| 116586 | 719 | 72 | 46 | | | | |
| 116685 | 5954 | 1191 | 1165 | — | 6 | 1056 | 0.866 |
| | 1386 | 277 | 251 | | | 142 | 0.116 |
| | 1350 | 135 | 109 | | | | |
| 117005 | 371 | 74 | 48 | — | 6 | −249 | |
| | 802 | 161 | 135 | | | −162 | |
| 116669 | 1616 | 323 | 297 | | | | |
| 112858 | 1970 | 394 | 372 | 397 | 6 | 317 | 0.260 |
| | 2214 | 443 | 421 | | | | |
| 113392 | 508 | 102 | 80 | | | | |

Table 8.

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 21 | 19°33′N 121°19′E | Nov. 24 | 1200 | 1205～1805 | L | 5181 | 36574/ 5 |
| | | | | | L | 5182 | 1372/10 |
| | | | | | D | 5183 | 581/ 7 |
| 22 | 17°12′N 120°01′E | 25 | 0550 | 0603～1203 | L | 5184 | 2273/ 5 |
| | | | | | L | 5185 | 2270/ 5 |
| | | | | | D | 5186 | 637/ 7 |
| 23 | 16°35′N 119°48′E | 25 | 1100 | 1105～1705 | L | 5187 | 3919/ 5 |
| | | | | | L | 5188 | 3667/ 5 |
| | | | | | D | 5189 | 358/ 5 |
| 24 | 15°33′N 119°46′E | 25 | 1815 | 1825～0025 | L | 5190 | 1195/ 5 |
| | | | | | L | 5191 | 1231/ 5 |
| | | | | | D | 5192 | 603/ 5 |
| 25 | 22°17′N 121°13′E | Dec. 4 | 0545 | 0600～1200 | L | 5193 | 11704/ 5 |
| | | | | | L | 5194 | 12954/ 5 |
| | | | | | D | 5195 | 351/ 7 |
| 26 | 23°10′N 121°33′E | 4 | 1155 | 1204～1804 | L | 5196 | 5556/ 5 |
| | | | | | L | 5197 | 6334/ 5 |
| | | | | | D | 5198 | 295/ 8 |
| 27 | 27°53′N 124°32′E | 12 | 0555 | 0605～1205 | L | 5199 | 11863/ 5 |
| | | | | | L | 5200 | 13244/ 5 |
| | | | | | D | 5201 | 547/10 |
| 28 | 27°56′N 124°27′E | 12 | 1150 | 1200～1800 | L | 5202 | 21304/ 5 |
| | | | | | L | 5203 | 22148/ 5 |
| | | | | | D | 5204 | 429/10 |
| 29 | 28°41′N 125°46′E | 15 | 0555 | 0608～1208 | L | 5205 | 17087/ 5 |
| | | | | | L | 5206 | 16795/ 5 |
| | | | | | D | 5207 | 207/ 5 |
| 30 | 29°06′N 126°32′E | 15 | 1235 | 1240～1840 | L | 5208 | 11227/ 5 |
| | | | | | L | 5209 | 13093/ 5 |
| | | | | | D | 5210 | 656/10 |

(Continued)

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Average counts/m | Time of incubation | Light minus dark | mgC/hr/m$^3$ |
|---|---|---|---|---|---|---|---|
| 113392 | 37899 | 7580 | 7558 | — | | 7493 | 6.144 |
| 112695 | 1430 | 140 | 118 | | 6 | 53 | 0.043 |
| 111575 | 612 | 87 | 65 | | | | |
| | 2394 | 479 | 457 | 460 | | | |
| 110301 | 2418 | 484 | 462 | | 5 | 385 | 0.377 |
| | 679 | 97 | 75 | | | | |
| | 4156 | 831 | 809 | 783 | | | |
| 110794 | 3889 | 778 | 756 | | 6 | 729 | 0.600 |
| | 380 | 76 | 54 | | | | |
| 109130 | 1287 | 257 | 235 | 239 | | | |
| 109719 | 1318 | 264 | 242 | | 6 | 133 | 0.109 |
| | 646 | 129 | 107 | | | | |
| 110932 | 12397 | 2479 | 2457 | 2590 | | | |
| | 13721 | 2744 | 2722 | | 6 | 2560 | 2.099 |
| 112555 | 366 | 52 | 30 | | | | |
| 112462 | 5805 | 1161 | 1139 | 1221 | | | |
| | 6618 | 1324 | 1302 | | 6 | 1204 | 0.987 |
| 112325 | 309 | 39 | 17 | | | | |
| | 12410 | 2482 | 2460 | 2605 | | | |
| | 13854 | 2771 | 2749 | | 6 | 2566 | 2.104 |
| | 575 | 58 | 39 | | | | |
| 111787 | 22393 | 4479 | 4460 | 4575 | | | |
| 110525 | 23546 | 4709 | 4690 | | 6 | 4546 | 3.728 |
| 105427 | 478 | 48 | 29 | | | | |
| 103179 | 19459 | 3892 | 3873 | 3829 | | | |
| 103757 | 19019 | 3804 | 3785 | | 6 | 3800 | 3.116 |
| | 238 | 48 | 29 | | | | |
| 102189 | 12911 | 2582 | 2562 | 2793 | | | |
| | 15210 | 3042 | 3023 | | 6 | 2736 | 2.244 |
| 101147 | 762 | 76 | 57 | | | | |

Ⅲ

# THE "HOKUSEI MARU" CRUISE 7 TO THE WESTERN CAROLINE WATERS IN NOVEMBER - DECEMBER 1959

# 北 星 丸 第 7 次 航 海
# 昭和34年11月～12月西カロリン海域

## 1. Cruise Report
（航海報告）

| | | |
|---|---|---|
| Departure from Hakodate | Nov. 6 | （函館出港） |
| Arrival in Misaki | Nov. 8 | （三崎入港） |
| Departure from Misaki | Nov. 10 | （三崎出港） |
| First tuna long line fishing | Nov. 18 | （まぐろ延縄試験開始） |
| Last tuna long line fishing | Nov. 24 | （まぐろ延縄試験終了） |
| Arrival in Kobe | Dec. 4 | （神戸入港） |
| Departure from Kobe | Dec. 7 | （神戸出港） |
| Arrival at Shimizu | Dec. 9 | （清水入港） |
| Departure from Shimizu | Dec. 11 | （清水出港） |
| Arrival in Tokyo | Dec. 12 | （東京入港） |
| Departure from Tokyo | Dec. 15 | （東京出港） |
| Arrival at Kesennuma | Dec. 18 | （気仙沼入港） |
| Departure from Kesennuma | Dec. 20 | （気仙沼出港） |
| Returned to Hakodate | Dec. 21 | （函館帰港） |

Covered 5247 miles in total, 46 days including the days in port. （総航程5247浬，航海日数46日）

## 2. Vessel personnel
（乗 船 者）

| | | |
|---|---|---|
| Captain:（船長） | Seikichi Mishima | （三 島 清 吉） |
| Crew:（乗組員） | | |
| Chief Officer | Shoichi Yamamoto | （一等航海士 山 本 昭 一） |
| Second Officer | Shingo Takenaga | （二等航海士 武 長 進 午） |
| Third Officer | Kenji Shimazaki | （三等航海士 島 崎 健 二） |
| Chief Engineer | Yuhachi Yanagiya | （機 関 長 柳 谷 勇 八） |
| First Engineer | Minoru Fujita | （一等機関士 藤 田 実） |
| Second Engineer | Sho Takashimizu | （二等機関士 高清水 祥） |
| Wireless Operator | Shiro Noguchi | （通 信 長 野 口 四 郎） |
| and 13 men | | |
| Student Adviser:（指導教官） | | |
| Assistant Professor | Hiroya Takahashi | （助教授 高 橋 広 弥） |
| Cadets:（実習生） | | |
| Eleven cadets of Advanced Course of Pelagic Fishery | | （遠洋漁業学科特設専攻科学生 11名） |

A total of 33 persons （総員 33名）

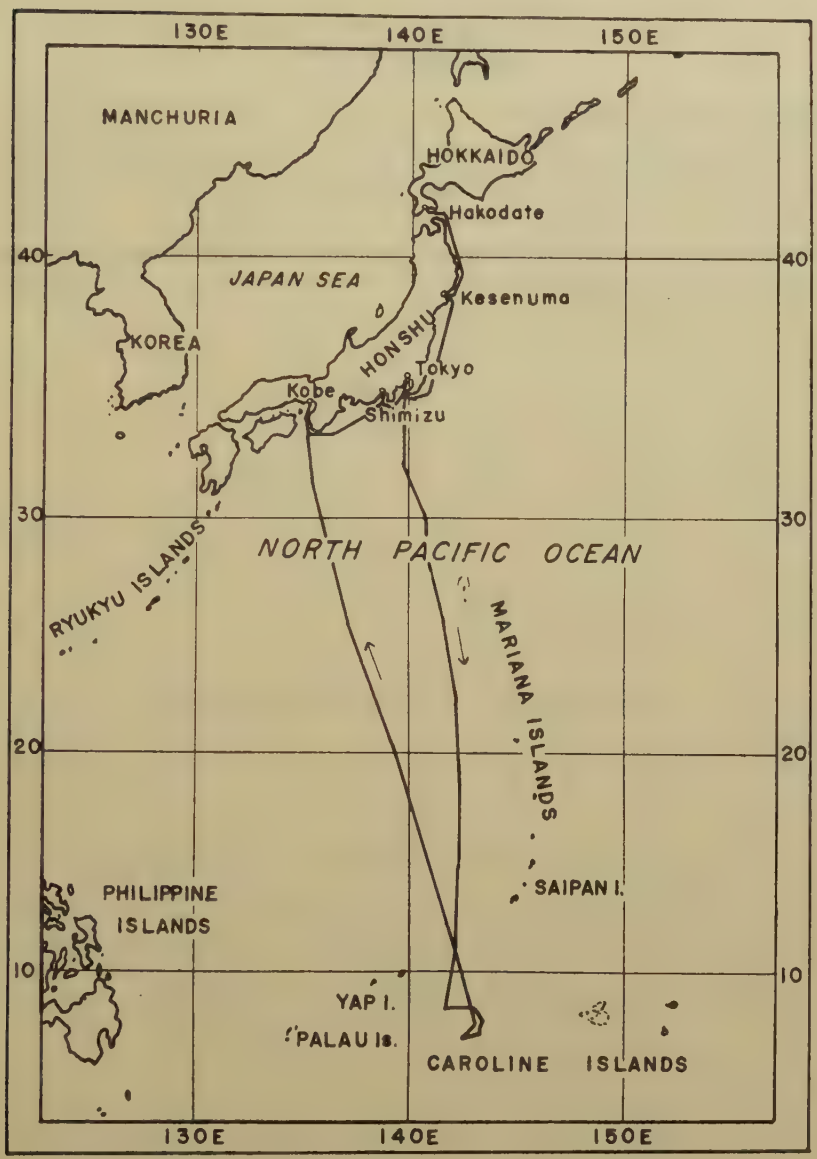



Fig. 14. Track of the "Hokusei Maru" cruise 7 to the western Caroline waters in November–December 1959

## 3. Items of Observations and Procedure at Sea
(調査項目及海上作業)

Meteorological observations: (気象観測)

Every three-hour interval, covering the whole course. Data are not presented here in order to save the printing cost; they will gladly be supplied by direct communication upon request.

Hydrographic observations: (海洋観測)

At 7 stations in the fishing ground, covering depths from the surface to usually 200 meter depth.

Tuna long-line fishing: (鮪延縄試験)

Seven operations were made in the western Caroline waters.

## 4. Data on Hydrographic Conditions on the Fishing Ground
(漁場の海洋観測記録)

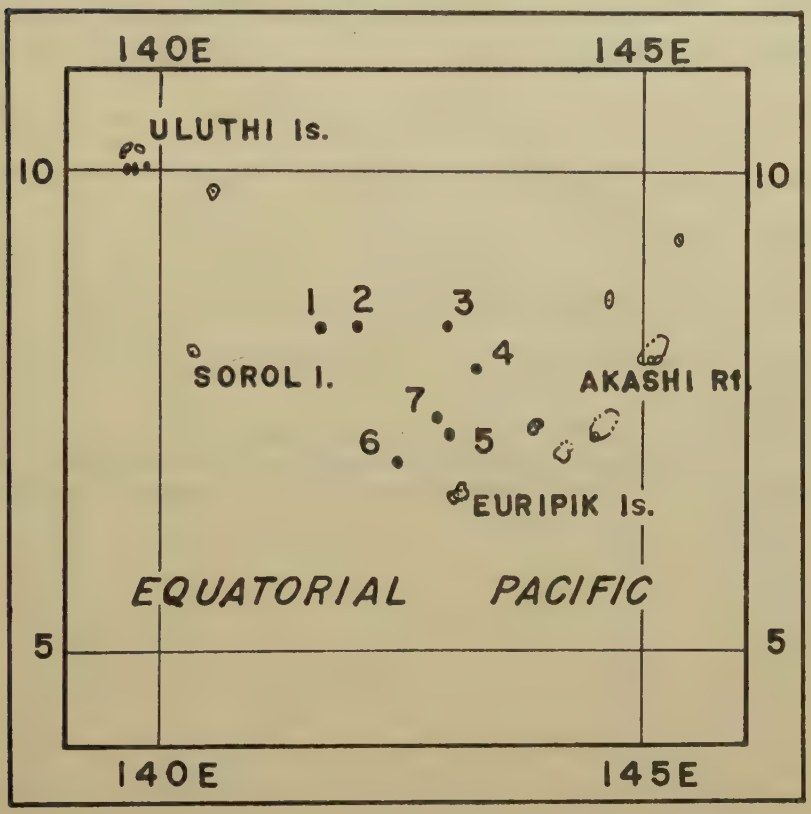



Fig. 15. Positions of hydrographic observations and long-line fishing in the "Hokusei Maru" cruise 7 to the western Caroline waters in November-December 1959

Table 9. Data on hydrographic conditions on fishing ground in the "Hokusei

| Station | Ship's time | | Greenwich mean time | | Position | | Weather | Wind direction | Wind force |
|---|---|---|---|---|---|---|---|---|---|
| | Date | Hour | Date | Hour | Latitude | Longitude | | | |
| 1 | Nov. 18 | 0830 | Nov. 17 | 2330 | 8°31′N | 141°56′E | bc | E N E | 3 |
| 2 | Nov. 19 | 0830 | Nov. 18 | 2330 | 8°41′N | 142°19′E | bc | E N E | 3 |
| 3 | Nov. 20 | 0830 | Nov. 19 | 2330 | 8°31′N | 143°14′E | bc | E N E | 2 |
| 4 | Nov. 21 | 0830 | Nov. 20 | 2330 | 8°09′N | 143°31′E | bc | East | 3 |
| 5 | Nov. 22 | 0830 | Nov. 21 | 2330 | 7°20′N | 143°30′E | C | S E | 4 |
| 6 | Nov. 23 | 0830 | Nov. 22 | 2330 | 7°08′N | 142°43′E | bc | E N E | 1 |
| 7 | Nov. 24 | 0830 | Nov. 23 | 2330 | 7°31′N | 143°15′E | C | East | 4 |

All exploratory fishings were carried out at the same places as the hydrographic obsevations.

Maru'' cruise 7 to the western Caroline waters in November–December 1959

| Atmospheric pressure (mb) | Air temperature (°C) | Sea temperature (°C) | | | | | | | | Current | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0m | 10m | 25m | 50m | 75m | 100m | 150m | 200m | Direction | Velocity (kt) |
| 1011.0 | 28.5 | 28.9 | — | 28.8 | 28.9 | 26.0 | 25.7 | 20.8 | — | 290° | 0.7 |
| 1010.9 | 28.2 | 29.0 | 28.9 | 28.8 | 28.6 | — | 23.0 | 14.1 | 12.3 | 305° | 0.3 |
| 1010.0 | 28.5 | 28.8 | 28.8 | 28.7 | 26.7 | 22.4 | 20.2 | 15.6 | 11.6 | 220° | 0.3 |
| 1010.5 | 28.0 | 28.8 | 28.8 | 28.7 | 29.2 | 25.0 | 20.7 | 16.3 | 11.6 | 250° | 0.8 |
| 1010.0 | 28.5 | 28.8 | 28.5 | 28.5 | 28.5 | 26.3 | 23.0 | 16.2 | 11.0 | 150° | 0.3 |
| 1010.0 | 28.0 | 28.8 | 28.5 | 28.5 | 28.5 | 25.5 | 22.5 | 13.5 | 11.0 | 150° | 0.4 |
| 1008.0 | 27.5 | 28.8 | 28.5 | 28.5 | 28.5 | 24.8 | 22.0 | 15.5 | 13.0 | 140° | 0.3 |

## 5. Data on Tuna Long-Line Fishing
(鮪延縄試験記録)

One hundred and fifty Hachi (baskets) of long-line were used. One Hachi (one basket) contained 249 meters of main rope carrying 4 branch lines each of which had one hook. The hooks were hung usually at 80-110 meter depths. The distance between hooks was about 50 meters. Refrigerated sauries were used as bait.

Operation of long-line was supervised by S. Mishima (Captain) and deck officers. All hands of the crew and cadets were engaged in the operation.

The fish caught with a long-line were:

*Neothunns macropterus* (*Temminck & Schlegel*), Yellowfin, キハダ

*Parathunnus mebachi* (*Kishinouye*), Big-eyed tuna, メバチ

*Istiophorus orientalis* (*Temminck & Schlegel*), Sail fish, バショウカジキ

*Makaira mazara* (*Jordan & Snyder*), Black marlin, Mazara, クロカワカジキ, マサキ

*Xiphias gladius* (*Linnaeus*), Swordfish, メカジキ

*Katsuwonus vagans* (*Lesson*), Bonito, カツオ

*Carcharinus* spp., Shovelnose and allies, ヒラガシラ類

*Scomberomorus sinensis* (*Lacépède*), Spanish mackerel, オキサワラ

*Prionace glauca* (*Linnaeus*), Great blue shark, ヨシキリザメ

*Isurus glaucus* (*Müller & Henle*), Bonito shark, アオザメ

*Coryphaena hippurus Linne*, Dolphin, シイラ

Table 10. Data on tuna long-line fishing in the "Hokusei Maru" cruise 7 to the western Caroline waters in November-December 1959

| No. of fishing | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Date | | Nov. 18 | Nov. 19 | Nov. 20 | Nov. 21 | Nov. 22 | Nov. 23 | Nov. 24 |
| Position of line set | Latitude | 8°31′N | 8°41′N | 8°31′N | 8°09′N | 7°20′N | 7°08′N | 7°31′N |
| | Longitude | 141°56′E | 142°19′E | 143°14′E | 143°31′E | 143°30′E | 142°43′E | 143°15′E |
| Time (Local time) | Line set | 04-28<br>06-28 | 04-30<br>06-40 | 04-30<br>06-40 | 04-30<br>06-45 | 04-30<br>06-45 | 04-30<br>06-40 | 04-30<br>06-50 |
| | Line haul | 12-30<br>17-10 | 13-30<br>18-30 | 13-30<br>18-30 | 13-30<br>18-50 | 13-30<br>19-50 | 13-30<br>19-30 | 13-30<br>19-10 |
| Direction of line set | | 230° | 230° | 230° | 230° | 270° | 245° | 260° |
| Number of baskets used | | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Tuna and allied fishes hooked (Number of fish) | Yellowfin キハダ | 20 | 26 | 33 | 39 | 52 | 51 | 34 |
| | Big-eyed tuna メバチ | 1 | 2 | 1 | 3 | 4 | 1 | 3 |
| | Sail fish バショウカジキ | 1 | 1 | 1 | 1 | 1 | 3 | 2 |
| | Mazara クロカワカジキ | 3 | | 3 | 2 | 7 | 11 | 2 |
| | Sword fish メカジキ | | | 1 | | 1 | | |
| | Bonito カツオ | | 10 | 3 | 2 | | 2 | 16 |
| | Tunas snapped by sharks サメクイ | 4 | 5 | 5 | 13 | 11 | 8 | 8 |
| | Total | 29 | 44 | 47 | 60 | 76 | 76 | 65 |
| Number of tunas per 100 hooks | | 4.8 | 7.3 | 7.8 | 10.0 | 12.6 | 12.6 | 10.8 |
| Fishes other than tunas hooked (Number of fish) | Gangs shark メジロザメ | 4 | 3 | 4 | 4 | 3 | 2 | 3 |
| | Great blue shark ヨシキリ | 10 | 15 | 10 | 6 | 4 | 3 | 10 |
| | Dolphin シイラ | | 1 | 2 | | | 1 | |
| | Spanish mackerel オキサワラ | | 1 | | | | | 1 |

# Ⅳ

# THE "OSHORO MARU" CRUISE 46 TO THE BERING SEA AND NORTH PACIFIC IN JUNE - AUGUST 1960

# おしよろ丸第46次航海

## 昭和35年6～8月ベーリング海及北太平洋

## (一部水産庁委託調査)

## 1. Cruise Report
（航海報告）

| | | |
|---|---|---|
| Departure from Hakodate | June 6 | （函館出港） |
| First hydrographic cast | June 11 | （海洋観測開始） |
| First salmon gill-net set | June 11 | （さけます流網開始） |
| Changed date | June 21 | （日附変更） |
| Passed Amchitka Pass | June 23 | （アムチトカ水道通過） |
| Passed Amukta Pass | June 28 | （アムクタ水道通過） |
| Visited fish-meal factory ship "Kinyo Maru" | July 8 | （ミール工船錦洋丸見学） |
| Visited fish-meal factory ships "Renshin Maru" and "Gyokuei Maru" | July 12 | （ミール工船廉進丸，玉栄丸見学） |
| Passed Unimak Pass | July 14 | （ウニマック水道通過） |
| Last salmon gill-net set | July 15 | （さけます流網終了） |
| Fifty-first hydrographic cast | July 19 | （第51地点海洋観測） |
| Arrival at Juneau, Alaska | July 21 | （ジュノー到着） |
| Departure from Juneau, Alaska | July 26 | （ジュノー出港） |
| Arrival at Seattle, Washington | July 30 | （シアトル到着） |
| Departure from Seattle, Washington | August 5 | （シアトル出港） |
| Fifty-second hydrographic cast | August 10 | （第52地点海洋観測） |
| Passed date line (180° Long.) | August 18 | （日附変更） |
| Last hydrographic cast | August 18 | （海洋観測終了） |
| Returned to Hakodate | August 29 | （函館帰港） |

Covered 11080 miles in total, 73 days at sea, 11 days in ports

（総航程11080浬，航海日数73日，在港日数11日）

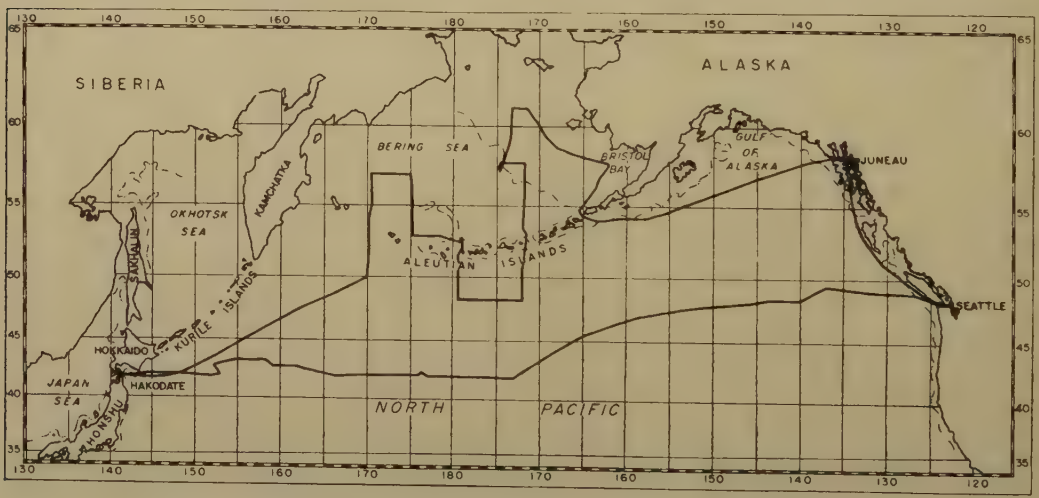



Fig. 16. Track of the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June-August 1960

## 2. Vessel Personnel
(乗 船 者)

| | | | |
|---|---|---|---|
| Captain: (船長) | Takeji Fujii | | (藤 井 武 治) |
| Crew: (乗組員) | | | |
| Chief Officer | Shigeo Abe | (一等航海士 | 阿 部 茂 夫) |
| First Officer | Shoji Saito | (次席一等航海士 | 斎 藤 昭 二) |
| Second Officer | Noriyoshi Masuda | (二等航海士 | 増 田 紀 義) |
| Third Officer | Shigekatsu Nakane | (三等航海士 | 中 根 重 勝) |
| Chief Engineer | Shoichi Tomisawa | (機 関 長 | 富 沢 正 一) |
| First Engineer | Kenzo Omi | (一等機関士 | 尾 見 健 三) |
| Second Engineer | Ichiro Kataoka | (二等機関士 | 片 岡 一 郎) |
| Third Engineer | Tetsusaburo Inomata | (三等機関士 | 猪 股 鉄三郎) |
| Chief Wireless Operator | Toshio Kasao | (通 信 長 | 笠 尾 俊 雄) |
| Junior Wireless Operator | Mitsuo Kurotori | (次席通信士 | 黒 鳥 満 雄) |
| Purser | Akira Togashi | (事 務 長 | 富 樫 章) |
| Doctor | Yukio Sato | (船 医 | 佐 藤 行 郎) |
| and 23 men | | | |

Research Staff: (調査員)

*Faculty of Fisheries, Hokkaido University, in Hakodate*

| | | |
|---|---|---|
| Professor, Dr. (leader) | Sigeru Motoda (Biology) | (団長 教授 元田 茂 生物) |
| Professor, Dr. | Minoru Sakai (Bacteriology) | (教授 坂井 稔 細菌) |
| Assistant Professor, Dr. | Teruyoshi Kawamura (Biology) | (助教授 川村輝良 生物) |
| Research Assistant | Takahisa Kimura (Bacteriology) | (助手 木村喬久 細菌) |
| Graduate Student | Makoto Omori (Biology) | (大学院学生 大森 信 生物) |

*Hokkaido Gakugei Daigaku, Hakodate Branch, in Hakodate*

| | | |
|---|---|---|
| Professor, Dr. | Kei Oshite (Geology) | (北海道学芸大学教授 押手 敬 地質) |

*Hokkaido Regional Fisheries Research Laboratory in Yoichi*

| | | |
|---|---|---|
| Technical Official | Katsutoshi Miwa (Chemistry) | (農林技官 北海道区水産研究所 三輪勝利 化学) |

*Japan Fisheries Agency, Ministry of Agriculture and Forestry, in Tokyo*

| | | |
|---|---|---|
| Technical Official | Toshiaki Otsuki (Biology) | (農林技官 水産庁 大槻俊秋 生物) |

Cadets: (実習生)

Twenty-three cadets of Advanced Course of Pelagic Fishery
(遠洋漁業学科特設専攻科学生 23名)

A total of 67 persons (総員 67名)

Passengers (on return course from Juneau to Hakodate via Seattle): (ジュノー函館間復航便乗者)

| | | |
|---|---|---|
| Technical Official at Geological Institute, Faculty of Science, Hokkaido University, in Sapporo | Sumio Kumano (Geology) | (文部技官 北大理学部 熊野純男 地質) |
| Graduate Student | Tsutomu Takahashi (Meteorology) | (大学院学生 高橋 劭 気象) |
| Graduate Student | Katsuhiro Kikuchi (Meteorology) | (大学院学生 菊地勝広 気象) |

## 3. Narrative of the Cruise
(航 海 記)

In order to accomplish the whole expeditionary research in the Bering Sea and the Aleutian region within a limited period, hydrographic stations had to be dispersed over the area rather sparsely. In addition, items of observation proposed to be done were great including hydrography, nutrient substances, basic productivity, marine bacteria, plankton, bottom deposits, exploratory fishing and so forth. Because of the necessity to spend a certain length of time at one station for performance of these various works, as well as having a limited number of scientists on board ship to participate in these works, some observation stations were caused to be cut down. In our original plan, the hydrographic observations were proposed to be done at 80 stations throughout the outward and homeward cruises and the exploratory gill net set was scheduled to be carried out at 16 stations. However, our observations were performed at 44 hydrographic stations between Hakodate and Bristol Bay, at 7 stations in the Gulf of Alaska, and at only three stations on our homebound course from Seattle to Hakodate. Exploratory gill net sets were carried out at 16 stations as scheduled in the original plan.

The "Oshoro Maru" left her homeport, Hakodate, at 2.00 p.m. on June 6. On the early morning of the next day the ship passed Cape Erimo. The weather which had been sunny and warm until that time suddenly changed and became chilly and foggy. What a gloomy and melancholy weather it was! Such is the typical weather prevailing in summer in the North Pacific. The ship sailed into the Bering Sea at 170°E longitude between the Kommandorskii Islands and the Attu Island. After getting to 57°N latitude the ship sailed to the east and then to the south, going out from the Bering Sea into the Pacific through Amchitka Pass. The date was doubled on June 21 after passing 180° longitude. To the south of the Central Aleutians the course of the ship was selected to trace the track of the hydrographic cruise of last year, traversing the Aleutian Current and reaching about 48°N latitude, where the water was in the region of the warm Kuroshiwo extension. The Aleutian Current was traversed again along 127° W longitude on the northward course. The ship entered once again into the Bering Sea through Amukta Pass, and sailed toward the north as far as about 61°N latitude. The ship then passed to the north of the St. Matthew Islands, then turned southeast toward Bristol Bay. On the shallow bottom in the eastern part of the Bering Sea 17 bottom deposits samplings were performed.

On July 9, in Bristol Bay, with thick fog covering the rolling sea, we came close to a Japanese fish-meal factory ship, called the "Kinyo Maru," which was anchored at 58°42.5′N, 167°53.5′W. We stopped near that ship and visited it by using a motor sampan which was dispatched from that ship. On arriving at the ship's side some of the scientists were frightened as they had to jump up onto the Jacob's ladder hanging from the towering deck of the ship. It was very dangerous to jump up onto the ladder from a sampan which was being raised and lowered by large swells. To stand on the steady deck of such a big ship gave us a rather unfamiliar feeling because we had spent more than one month on our small ship which had rolled and pitched incessantly. It was a real surprise for us all to see a huge mountain of fish piled up on the deck of this factory ship. The greatest refreshment that was given to us on this ship was to be able to take a bath for the first time since leaving Hakodate. The cadets had a look at the fish-meal processing in the factory under the deck. The next day they spent the whole day on catcher boats, watching the trawling campaign in activity.

As we sailed toward the east of Bristol Bay the sea became quite calm, and when the fog lifted we enjoyed ourselves by basking in the sun and occasionally played chess on the deck under the warm sunshine. On July 12 we visited another fish-meal factory ship, "Renshin Maru," anchored at 57°46′N, 162°01′W, on which we were entertained with a fine feast. On July 13 our ship sailed toward the southwest heading for Unimak Pass. Early the morning next day we stopped off at Unimak Island for hydrographic work and enjoyed a view of the snow-capped volcanoes Shishardin, Pogromni and other smaller ones, all were brilliantly shining in the dawning light. After passing Unimak Pass around noon a considerable number of sea-birds flocks and herds of sea-lions and fur-seals were seen. There were also many fish shoals here and there and small fish were leaping on the sea surface. It was a very interesting spectacle to see killerwhales attacking a sperm whale. We also saw many sea-birds and

marine mammals flocking and herding when we sailed into the Gulf of Alaska. We were deeply impressed with the fact that the Gulf of Alaska was really filled with marine life.

The ship sailed on in the direction of Juneau on the coast of south-eastern Alaska. To the south of our course there existed a high atmospheric pressure and the ship ran swiftly, being driven by west wind. In the evening of July 20 we reached the Alaskan coast and feasted our eyes upon the sight of steep mountains. Their snow-capped summits and sloping glaciers were glittering with bluish white color. The ship entered into Cross Sound early on the morning of the next day, heading against the strong ebb tide. Passing Ice Strait we saw flocks of gulls and ducks flying in the air or resting on the water inlaid with drift blocks of glacial ice. Even whales were spouting there.

At about noon, to our great regret, a crack of about two feet long occurred on the neck of the flange of the exhaust manifold of the main engine, which resulted in a leakage of the cooling water. This incident was followed by an annoying shocking trouble as we had to keep the engine at a fixed velocity to avoid to much cooling down of the manifold which if not done might widen the crack and make the leakage greater. Later on in the cruise, the stopping of the ship for hydrographic works became very troublesome for the engineers because of the crack.

The "Oshoro Maru" arrived in Juneau at 4.00 p.m. on the same day. This was the first call that Japanese ship had made at this port. The "Oshoro Maru" was moored at the Government Dock in Gastineau Channel through the kind arrangement of the U. S. Coast Guard. The tidal range in Gastineau Channel was very large, recording 15 feet in spring tide. During the low tide the main deck of the "Oshoro Maru" became far below the platform of the pier, and the accomodation ladder which hung from the pier to the deck was so steep, that the visitors were much inconvenienced to step on it.

The calls at Juneau and Seattle on this cruise were for the purpose of making a courtesy visit as well as for the necessity of getting supplied with fresh-water, fuel oil and provisions. It was also considered to be profitable for the scientists, ship's officers and cadets to visit fisheries laboratories and industries in both of the cities. The visit would be particularly significant in this year when the memorable centenary of Amity Treaty between the United States and Japan was celebrated. The people in Juneau, not only the officials but also the general public, were very kind and polite to us. Their warm hospitality and politeness made us feel so much at home. All aboard the ship greatly enjoyed themselves in attending a welcome party, in playing soft ball games with the Coast Guard team and in taking a sightseeing trip to Mendenhall Glacier. The ship's surgeon attended a reception party dressed in formal Japanese clothes and this aroused much curiosity among the people. The scientific group was especially happy to meet the staff of the Department of Fish and Game, State of Alaska, and of the Biological Laboratory, Bureau of Commercial Fisheries. They were greatly impressed with the fine new laboratory building of the Bureau of Commercial Fisheries which was under construction on the beach of Auke Bay.

When we visited Juneau, the Ice Party (Hokkaido University Scientific Expedition) for glacier ice investigations was staying in the camps set up close by Mendenhall Glacier. At the request of the Party 500 kg of ice crystal specimens from the glacier were taken on board the "Oshoro Maru" to be stored in the freezing chamber and carried back to Japan, and also three young scientists of the Party, who were at a loss, having missed a Japanese freighter were welcomed to go aboard our ship to be our guests on the homeward voyage.

We departed from Juneau on the morning of July 26, passed through Stephens Passage, Frederick Sound and Chatham Strait, and went out to the open sea off the Prince of Wales Islands. Fortunately the sea, on this course, at this time was calm and the ship was comfortably driven by gentle breezes and tail currents. We sailed off the Queen Charlotte Islands and then off Vancouver Island. The weather was fine in contrast to the everyday drizzle which we had while staying in Juneau. Passing close to the coast of Vancouver Island, we noticed that the sea water was very turbid and stained, being brownish in color, but the water was found to be clear when we entered the Strait of San Juan de Fuca early on the morning of July 30. We arrived at Seattle at 11.00 a.m.

It happened to be just the season of the Sea Fair when we arrived in Seattle, however, we regrettably had to miss the Grand Parade because it had been held on the morning of the day of our

arrival. This was the second visit to Seattle for the "Oshoro Maru." We were very happy to be able to renew our friendship with those whom we met on the occasion of the similar cruise in 1955. They again welcomed us with warm hospitality and politeness. We visited the College of Fisheries, and the Department of Oceanography, in the University of Washington, and also the Biological Laboratory, Bureau of Commercial Fisheries. One day all on board ship were invited by the Seattle Japanese Community Service to a sightseeing trip to the famous national park, Mt. Rainier. On another day all the cadets were invited by the Seattle Sea Exploring Scouts to a short cruise to Puget Sound and Lake Washington on board the fine schooner, "Adventure." Dr. C. S. Barnes of the Department of Oceanography and Mr. L. M. Nakatsu of the Biological Laboratory kindly took three scientists of our group on a day's trip to the Friday Harbor Laboratories.

After departing from Seattle on August 5, the ship pitched heavily every day due to a strong headwind. A high atomospheric pressure existed to the south of the ship's course and drove the NW wind against our course. Sometimes the speed of the ship was forced down to under 4 knots. Shipping water often washed on the forecastle, splashing water against the window of the bridge. A scientist of the Ice Party who came on board in Juneau suffered from seasick so seriously, that he never ate a meal for nearly two weeks. The wind lasted until we reached about 160°W longitude on August 15. During this period we were only able to do one hydrographic observation on August 10 when the wind was slightly weakened. The course of the ship from Seattle was taken at 42°N, 175°W and from this position it was directed to the west. On August 19 when the ship passed 180° longitude, all on board ship were engaged in deep-sea fishing.

On August 20 while sailing at about 42°10′N, 177°E, we were informed that Typhoon 6014 (Typhoon Bess) was approaching the south of Japan. The typhoon changed its direction from north to ESE on August 21, and therefore, we steered for WNW at midnight of August 22 in order to keep a good distance away from the typhoon. Typhoon 6014 again changed its direction to WNW on August 24, and then to NW in the afternoon of August 25 when it was located at 36°N, 148°E. The ship's course was taken toward the south on the evening of August 25 when her position was 43°N, 152°30′E, and at that time twenty tons of sea water were taken into an empty oil tank on the bottom of the hull in order to increase the balast weight. On August 26 heavy SE winds blew as fast as 19 m/sec. The distance between the center of the typhoon and the ship was about 240 miles on the evening of August 26. The ship sailed for WSW from the morning of August 26 and was steered to the west from 9.00 p.m., since we knew that Typhoon 6014 had already gone to the northeast of Hokkaido. It became calmer in the afternoon of August 27 and the sun at time broke through the clouds. On the evening the setting sun reflecting brilliant orange yellow colors on the trailing clouds made a very beautiful sight. The Cape Erimo appeared on the horizon early on the morning of August 28, and the ship passed by it in the evening. The ship arrived safely in Hakodate at 6.30 a.m. the next morning, two days later than the proposed schedule. Another typhoon, Typhoon 6016 (Typhoon Della) was approaching from the south, so we rejoyced at our success in having dodged her.

During the cruise which covered 84 days including the period in ports, nobody on board, a total of 67 persons (70 persons on return cruise from Juneau via Seattle) suffered from serious illness. However, slight illnesses, such as flue, dispepsy, toothache, insomnia, otitis, hepatitis, tonsilitis, back pain, etc. occurred quite frequently. There were three patients suffering from appendicitis, but fortunately they all recovered without having to have an operation. The number of patients calling on the doctor were an average of six per day. The number of patients had a tendency to increase within a week after depature from and within a few days before arrival at every port, as compared with the number at other periods on the high sea. Such a tendency was deemed to be explained as a rather psychological phenomenon.

Before concluding this note we would like to express our sincere thanks to all of the people whom we met in Bristol Bay, in Juneau, and in Seattle, for their warm hospitality extended to our complements. (S. M.)

本航海では函館ブリストル湾間で44点，アラスカ湾で７点，復航シアトル～函館間で３点，合計54点で海洋観測を実施し，また往航において16回のサケマス流網漁業試験を行った。限られた期間内に，ベーリング

## *IV. Oshoro Maru Cruise 46 to the Bering Sea and North Pacific*

海及アリューシャン列島海域全般にわたる調査を行わなければならない関係上，観測点の分布が粗大になったのは止むを得ない。復航において観測点数の少なかったのは，悪天候の続いたことと，機関の事故により停船を避けなければならなかった理由による。

ベーリング海は例年に比べ，平穏な日が多く，霧も薄くて，航海及調査作業は比較的容易であった。しかしながら何分船齢33年の小型船（617トン）に総員67名に及ぶ多数が乗船し，居住区は狭隘を極めたので，乗員の疲労度は高く，且調査は多項目にわたったため，狭い研究室に各種実験器械を配置するには多大の困難を感じた。代船建造の際は，実習生の訓練を完全に行い，且国際的水準の調査研究を遂行出来るようにするためには，最小1500トンの大きさを必要とすることを痛感する。また公室をもたない本船では，外国寄港地において公式訪問者の接待その他について甚しく不便であった。

ブリストル湾においては北洋水産株式会社魚槽工船錦洋丸（7月9日）及廉進丸（7月12日）を訪問し，船内見学，実習生の独航船乗船の便を与えられたほか，一同入浴と食事の接待を受け長期の航海の疲労を癒やすことが出来た。

アラスカ州ジュノー市には7月21日より26日まで碇泊し，その間州及市当局，合衆国沿岸警備隊，国立水産研究所，州立水産試験場等より歓待され，見学，視察，観光等に有益なる日々を送った。またジュノー滞在中の北大理学部アラスカ氷河調査隊の依頼をうけ，単結晶氷塊500瓩を日本に運搬するため本船冷凍室に積込み，更に同調査隊員中3名本船に便乗帰国することとなった。

ワシントン州シアトル市寄港（7月30日～8月5日）は本船にとっては昭和30年の寄港以来2回目である。今回再び官民より熱烈な歓迎をうけた。一同ワシントン大学水産学部及海洋研究所を訪れ，また3名の調査員はフライデーハーバー臨海実験所に案内された。シアトル日系人会は本船全員を国立公園レニア山に案内され，またシアトル海洋少年団は実習生全員を彼等のヨット〝アドヴェンチュア〟号によるエリオット湾及ワシントン湖周航に招待してくれた。

8月5日シアトル出港一路日本に向ったが，約10日間連日逆風に悩まされた。東径に入った頃台風6014号が日本列島南方を北上中の情報をうけ，針路を少し北に向けたが，2日後台風は西進を始め，次いで俄然逆転して北西に向ったので，針路を南にかえ，重油空タンクに海水20トンを入れて，荒天に具えた。幸にして台風は北東に抜け，本船は台風通過後の区域を航行して8月29日函館に帰港した。

本航海は84日間に及んだが，幸にして事故なく終了したことは喜びに耐えない。航海中虫様突起炎患者3名発生したが何れも手術を要せずして恢復した。終りにブリストル湾，ジュノー及シアトル各地でお世話を戴いた各位に深甚の謝意を表する。

## 4. Specification of Hydrographic Stations
(海洋観測地点)

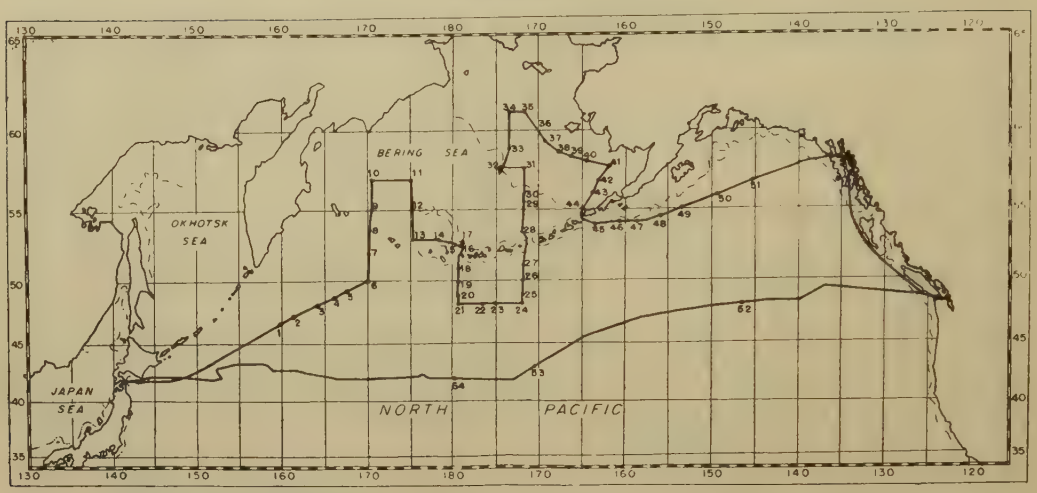



Fig. 17. Hydrographic stations in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

Table 11. Hydrographic stations in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

| Station | | Ship's mean time | | Greenwich mean time | | Position | | Maximum depth of cast (m) |
|---|---|---|---|---|---|---|---|---|
| | | Date | Hour | Date | Hour | Latitude | Longitude | |
| Os | 1 | June 11 | 0830～1125 | June 10 | 2230～0125 | 46°42′N | 159°55′E | 192 |
| Os | 2 | 〃 11 | 1900～2045 | 〃 11 | 0900～1045 | 47°10′N | 161°16′E | 1492 |
| Os | 3 | 〃 12 | 1833～2005 | 〃 12 | 0833～1005 | 48°09′N | 164°02′E | 1365 |
| Os | 4 | 〃 13 | 0833～1045 | 〃 12 | 2133～2345 | 48°38′N | 165°58′E | 982 |
| Os | 5 | 〃 13 | 1947～2043 | 〃 13 | 0847～0943 | 49°06′N | 167°33′E | 1498 |
| Os | 6 | 〃 14 | 1950～2140 | 〃 14 | 0850～1040 | 50°00′N | 170°00′E | 1050 |
| Os | 7 | 〃 15 | 1833～1943 | 〃 15 | 0733～0843 | 52°00′N | 170°10′E | 1145 |
| Os | 8 | 〃 16 | 0834～1000 | 〃 15 | 2134～2300 | 53°44′N | 170°10′E | 1485 |
| Os | 9 | 〃 16 | 1950～2100 | 〃 16 | 0850～1000 | 55°00′N | 170°30′E | 1420 |
| Os | 10 | 〃 17 | 1830～2000 | 〃 17 | 0730～0900 | 57°00′N | 170°30′E | 1110 |
| Os | 11 | 〃 18 | 1345～1530 | 〃 18 | 0245～0430 | 57°00′N | 175°03′E | 1033 |
| Os | 12 | 〃 19 | 1952～2100 | 〃 19 | 0852～1000 | 55°03′N | 175°07′E | 1400 |
| Os | 13 | 〃 20 | 1903～2035 | 〃 20 | 0803～0935 | 53°00′N | 175°05′E | 1135 |
| Os | 14 | 〃 21 | 1832～2015 | 〃 21 | 0732～0915 | 53°05′N | 178°05′E | 1068 |
| Os | 15 | 〃 21 | 0836～1005 | 〃 21 | 2036～2205 | 52°40′N | 179°48′W | 430 |
| Os | 16 | 〃 21 | 1604～1830 | 〃 22 | 0404～0630 | 52°36′N | 179°09′W | 193 |
| Os | 17 | 〃 22 | 1330～2035 | 〃 23 | 0130～0835 | 52°54′N | 178°54′W | 1485 |
| Os | 18 | 〃 23 | 2005～2110 | 〃 24 | 0805～0910 | 51°00′N | 179°31′W | 890 |
| Os | 19 | 〃 24 | 0514～0616 | 〃 24 | 1614～1816 | 49°58′N | 179°32′W | 1410 |
| Os | 20 | 〃 24 | 1243～1357 | 〃 25 | 0043～0157 | 49°01′N | 179°25′W | 1518 |
| Os | 21 | 〃 24 | 1835～1932 | 〃 25 | 0635～0732 | 48°16′N | 179°32′W | 1512 |
| Os | 22 | 〃 25 | 0933～1047 | 〃 25 | 2133～2247 | 48°19′N | 176°45′W | 203 |
| Os | 23 | 〃 25 | 1832～2045 | 〃 26 | 0632～0845 | 48°25′N | 175°11′W | 193 |
| Os | 24 | 〃 26 | 1315～1530 | 〃 27 | 0115～0330 | 48°22′N | 172°00′W | 1510 |
| Os | 25 | 〃 26 | 2027～2200 | 〃 27 | 0827～1000 | 48°59′N | 171°59′W | 1590 |
| Os | 26 | 〃 27 | 0540～0640 | 〃 27 | 1740～1840 | 50°01′N | 171°59′W | 1800 |
| Os | 27 | 〃 27 | 1605～1820 | 〃 28 | 4005～0620 | 51°16′N | 171°56′W | 1300 |
| Os | 28 | 〃 28 | 0833～0955 | 〃 28 | 2033～2155 | 53°31′N | 171°58′W | 1537 |
| Os | 29 | 〃 29 | 1510～1643 | 〃 30 | 0310～0443 | 55°30′N | 171°52′W | 1551 |

Table 11. (Continued)

| Station | Ship's mean time | | Greenwich mean time | | Position | | Maximum depth of cast (m) |
|---|---|---|---|---|---|---|---|
| | Date | Hour | Date | Hour | Latitude | Longitude | |
| Os 30 | June 30 | 1500～1617 | July 1 | 0300～0417 | 56°00′N | 171°44′W | 1535 |
| Os 31 | July 1 | 1620～1710 | 〃 2 | 0420～0510 | 57°40′N | 171°50′W | 102 |
| Os 32 | 〃 2 | 1645～1823 | 〃 3 | 0445～0623 | 57°41′N | 174°25′W | 968 |
| Os 33 | 〃 5 | 1802～1940 | 〃 3 | 0602～0740 | 58°59′N | 173°32′W | 109 |
| Os 34 | 〃 6 | 1135～1152 | 〃 6 | 2335～2352 | 61°01′N | 173°24′W | 69 |
| Os 35 | 〃 6 | 1920～1945 | 〃 6 | 0720～0745 | 61°00′N | 171°39′W | 50 |
| Os 36 | 〃 7 | 1305～1330 | 〃 7 | 0105～0130 | 59°58′N | 170°00′W | 50 |
| Os 37 | 〃 7 | 1832～1850 | 〃 8 | 0632～0650 | 59°25′N | 169°12′W | 45 |
| Os 38 | 〃 8 | 0835～0855 | 〃 8 | 2035～2055 | 58°43′N | 167°54′W | 40 |
| Os 39 | 〃 11 | 1305～1335 | 〃 12 | 0095～0035 | 58°25′N | 166°23′W | 45 |
| Os 40 | 〃 11 | 2100～2118 | 〃 12 | 0800～0818 | 58°10′N | 164°42′W | 45 |
| Os 41 | 〃 12 | 2000～2020 | 〃 13 | 0700～0720 | 57°46′N | 162°01′W | 35 |
| Os 42 | 〃 13 | 1307～1358 | 〃 14 | 0007～0058 | 56°50′N | 163°04′W | 65 |
| Os 43 | 〃 13 | 2110～2144 | 〃 14 | 0810～0844 | 56°04′N | 163°56′W | 80 |
| Os 44 | 〃 14 | 0535～0600 | 〃 14 | 1635～1700 | 55°07′N | 164°59′W | 72 |
| Os 45 | 〃 14 | 1830～1910 | 〃 15 | 0530～0610 | 54°05′N | 163°34′W | 99 |
| Os 46 | 〃 15 | 0840～0918 | 〃 15 | 1940～2018 | 54°15′N | 160°40′W | 197 |
| Os 47 | 〃 15 | 1915～2030 | 〃 16 | 0615～0730 | 54°14′N | 158°37′W | 1024 |
| Os 48 | 〃 16 | 1833～2010 | 〃 17 | 0533～0710 | 54°39′N | 156°02′W | 444 |
| Os 49 | 〃 17 | 0834～1005 | 〃 17 | 1934～2105 | 55°07′N | 153°25′W | 353 |
| Os 50 | 〃 18 | 0832～1118 | 〃 18 | 1832～2118 | 55°54′N | 149°24′W | 477 |
| Os 51 | 〃 19 | 0835～1029 | 〃 19 | 1835～2029 | 56°52′N | 145°22′W | 1030 |
| Os 52 | Aug. 10 | 1530～1759 | Aug. 11 | 0130～0359 | 48°14′N | 146°32′W | 2492 |
| Os 53 | 〃 16 | 1530～1653 | 〃 17 | 0330～0453 | 43°09′N | 170°30′W | — |
| Os 54 | 〃 18 | 1532～1726 | 〃 19 | 0332～0526 | 42°09′N | 179°42′W | — |

## 5. Items of Observations and Procedure at Sea
(調査項目及海上作業)

Meteorological Observations: (気象観測)

Every three-hour interval, covering the whole course. Data are not presented here in order to save the printing cost; they will gladly be supplied by direct communication upon request.

Hydrographic observations: (海洋観測)

At 54 stations, covering depths from the surface down to normally 1500 m.

Sampling of water for chlorinity measurement: (塩分測定用採水)

Water samples were taken at every hydrographic stations, covering depths from the surface down to normally 1500 m, and stored in glass bottles.

Analysis of water samples: (試水分析)

Dissolved oxygen, phosphate and silicate taken from the depths from the surface down to normally 1500 m were measured aboard at every hydrographic stations.

Sampling of the surface water for measurement of radio-activity: (放射能測定用表面水採水)

Five litters of the surface water were sampled at 10 stations, and stored in plastic bottles.

Sampling of marine bacteria: (海洋細菌採集)

Sample water was collected with J-Z samplers from 13 different depths from the surface to about 1500 m at 35 stations.

Plankton sampling: (プランクトン採集)

Duplicate vertical hauls with a fine mesh net, 30 cm × 150 cm, XX 13, from approximately 100 m depth, at every hydrographic station.

Duplicate vertical hauls with a NORPAC Standard net, 45 cm × 180 cm, GG 54, from approximately 150 m depth, at every hydrographic station.

Horizontal tows with a larva-net, 130 cm × 450 cm, stramin, through the surface layer for ten minutes at low speed at about one hour after sunset daily while underway. Samplings were carried out at 39 stations.

High speed tows with an Underway Plankton Catcher V (Motoda, 1959. Mem. Fac. Fish., Hokkaido Univ., Vol. 7, No. 1/2, p. 86), GG 54 net, for 30 minutes at about one hour after sunset daily. Samplings were carried out at 58 stations.

Simultaneous horizontal tows with eleven horizontal nets, 30cm × 100cm, GG 54, (Motoda, 1959. Mem. Fac. Fish., Hokkaido Univ., Vol. 7 No. 1/2, p. 78) through eleven different levels from the surface to about 2000 m at 5 stations.

Vertical hauls with a larva-net, 130 cm × 450 cm, stramin, from about 300 m at 3 stations.

Oblique hauls with the same type of the net through the depths from the surface to about 300 m at 1 station.

Horizontal hauls with the same type of the net through about 300 meter zone using the open-closing net, equipped with a double releasing mechanism (Motoda, 1959. Mem. Fac. Fish. Hokkaido Univ., Vol. 7, No. 1/2, p. 83) at 4 stations.

Dipping of the surface water at 76 stations for observations of microplankton. Samples were put to the Hakodate Marine Observatory at their disposal. Data are not presented in this *Data Record*.

Primary productioion measurement: (基礎生産力測定)

Carbon-fourteen experiments, chlorophyll colorimetric determination and phytoplankton cell count on the surface samples at 71 stations.

Sampling of fish larvae: (稚魚採集)

From the mixed plankton samples collected with a larva-net, 130 cm × 450 cm, stramin, and with an Underway Plankton Catcher V.

Sampling of plankton for analysis of fatty constituent: (油脂成分分析用プランクトン採集)

Samples were collected with a 130 cm larva-net by making surface horizontal tow for 30-60 minutes at 5 stations where plankton of comparatively monotonous composition occurred in abundance. Samples were brought back to the University by storing them in cans added with acetone as much as the size of samples. Analysis of samples is being made by M. Yamada in the University,

Sampling of bottom sediment in the eastern part of the Bering Sea: (ベーリング海東部採泥)

Bottom sediment was collected with a simple cylindrical dredge at 19 stations for the purpose of microfossil studies.

Bottom sediment was collected with an Emery's bacteria sampler at 15 stations for the purpose of bacteriological studies.

Salmon gill-net set: (鮭鱒流網)

Gill nets made up of six different mesh sizes were used. Gill nets were cast at 16 different locations. Specimens were used for biological studies. Seven red salmon heads were preserved in formalin for the purpose of histological studies of the brain by Prof. S. Kobayashi.

Eye-observations of sea-birds, whales, etc: (海鳥鯨等目視観察)

## 6. Data on Temperature, Salinity and Computed Dynamic Depth
(温度，塩分及ダイナミックデプス計算値記録)

Shallow casts in the upper 200 meters were carried out with a manual winch and deep casts below 300 meters were carried out with an electric winch.

In the first cast of 10 m, 20 m, 30 m, 50 m, and 75 m, each Nansen bottle normally carried two protected reversing thermometers.

In the second cast of 100 m, 125 m, 150 m and 200 m, Nansen bottles for 100 m ～ 150 m, carried two protected thermometers, and a bottle for 200 m carried two protected thermometers as well as an unprotected thermometer.

In the deep cast of 300 m, 400 m, 500 m, 800 m, 1000 m. 1200 m and 1500 m, each Nansen bottle carried two protected thermometers and an unprotected thermometer.

To made the observation as nearly the desired depth as possible, the following method was employed. Anticipating how wire cable would be inclined when it was run out until its end reached desired maximum depth of observation, positions of attachment of Nansen bottles were decided. This decision was obtained by measuring the angle of wire when the first Nansen bottole was lowered

to the shallowest of observations, as well as by the wind force at that time. Each Nansen bottle was attached to the wire cable in order in the following manner.

In the first cast, five Nansen bottles were attached to the following respective positions according to the degrees of wire angle.

| Wire angle | 10m | 20m | 30m | 50m | 75m |
|---|---|---|---|---|---|
| 0°~10° | 10 | 20 | 30 | 50 | 75 |
| 11°~20° | 10 | 20 | 30 | 50 | 80 |
| 21°~30° | 10 | 20 | 35 | 55 | 85 |
| 31°~40° | 10 | 25 | 35 | 60 | 95 |
| 41°~50° | 15 | 30 | 45 | 70 | 110 |
| 51°~60° | 20 | 35 | 55 | 90 | 135 |

In the second cast, four Nansen bottles were attached to the following respective positions according to the degrees of wire angle.

| Wire angle | 100m | 125m | 150m | 200m |
|---|---|---|---|---|
| 0°~10° | 100 | 125 | 150 | 200 |
| 11°~20° | 105 | 130 | 155 | 210 |
| 21°~30° | 110 | 140 | 165 | 220 |
| 31°~40° | 125 | 155 | 185 | 250 |
| 41°~50° | 145 | 180 | 215 | 290 |
| 51°~60° | 180 | 225 | 270 | 360 |

In the deep cast, eight Nansen bottles were attached to the following respective positions according to the degrees of wire angle.

| Wire angle | 300m | 400m | 500m | 600m | 800m | 1000m | 1200m | 1500m |
|---|---|---|---|---|---|---|---|---|
| 0°~10° | 300 | 400 | 500 | 600 | 800 | 1010 | 1210 | 1510 |
| 11°~20° | 310 | 420 | 520 | 630 | 830 | 1040 | 1250 | 1560 |
| 21°~30° | 330 | 450 | 560 | 670 | 890 | 1110 | 1340 | 1670 |
| 31°~40° | 370 | 490 | 620 | 740 | 990 | 1240 | 1480 | 1850 |
| 41°~50° | 430 | 580 | 720 | 860 | 1150 | 1440 | 1730 | 2160 |
| 51°~60° | 540 | 720 | 890 | 1070 | 1430 | 1790 | 2140 | 2680 |

The depths of observation from 10 m to 150 m were calculated by measuring the angle of the wire, and from 200 m to 1500 m were determined by measuring the angle and curves of wire length minus thermometeric depth versus wire length. However, some of the unprotected reversing thermometers

used on this cruise often did not indicate apparently proper temperature under the pressure at the depths. The depths at which thermometer readings were unreliable were assumed by "depth difference method" and in Table 12 the values were put in parentheses. At Os 1, Os 16, Os 22 and Os 23 assumption of the depths of observation was impossible.

The interpolated values of temperature and chlorinity were read from temperature-depth and chlorinity-depth curves respectively.

Double titration for chlorinity determination was carried out in the Oceanographic Laboratory of the University.

Calculation of depths, interpolation of data, and computation of dynamic depth were made by Y. Akiba.

Table 12. Data on temperature, salinity and computed dynamic depth in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

**Station Os 1**

Date June 11 Time 0830~1130 (S.M.T.) Latitude 46°42′N Longitude 159°55′E

Wind E 1 Weather o Air Temp. 4.7°C Sea × Swell E 1 Col. 4 Tr. 10m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 3.5 | (18.33) | (33.12) | 0 | 3.5 | 18.33 | 33.12 | 26.35 | 169 | 0 |
| 10 | 8 | 10 | 3.22 | (18.33) | (33.12) | 10 | 3.22 | 18.33 | 33.12 | 26.38 | 166 | 0.017 |
| 20 | 〃 | 20 | 2.84 | (18.33) | (33.12) | 20 | 2.84 | 18.33 | 33.12 | 26.41 | 163 | 0.034 |
| 30 | 〃 | 30 | 2.69 | (18.33) | (33.12) | 30 | 2.69 | 18.33 | 33.12 | 26.43 | 161 | 0.050 |
| 50 | 〃 | 50 | 2.49 | 18.33 | 33.12 | 50 | 2.49 | 18.33 | 33.12 | 26.44 | 160 | 0.082 |
| 75 | 16 | 72 | 2.22 | 18.33 | 33.12 | 75 | 2.12 | 18.33 | 33.12 | 26.48 | 156 | 0.122 |
| 100 | 〃 | 96 | 1.45 | 18.34 | 33.13 | 100 | 1.38 | 18.34 | 33.13 | 26.54 | 151 | 0.160 |
| 125 | 〃 | 120 | 1.10 | 18.37 | 33.19 | 150 | 1.14 | 18.55 | 33.51 | 26.91 | 116 | 0.227 |
| 150 | 〃 | 144 | 1.90 | 18.50 | 33.42 | 200 | 2.20 | 18.71 | 33.80 | 27.00 | 107 | 0.283 |
| 200 | 〃 | 192 | 3.48 | 18.74 | 33.86 | | | | | | | |

Table 12. (Continued)

**Station Os 2**

Date June 11 Time 1905～2050 (S.M.T.) Latitude 47°10′N Longitude 161°16′E
Wind NE 2 Weather o Air Temp. 3.8°C Sea × Swell NE 1 Col. × Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.7 | 18.34 | 33.13 | 0 | 3.7 | 18.34 | 33.13 | 26.34 | 170 | 0 |
| 10 | 0 | 10 | 3.59 | 18.36 | 33.17 | 10 | 3.59 | 18.36 | 33.17 | 26.39 | 165 | 0.017 |
| 20 | 〃 | 20 | 3.00 | 18.36 | 33.17 | 20 | 3.00 | 18.36 | 33.17 | 26.44 | 160 | 0.033 |
| 30 | 〃 | 30 | 2.98 | 18.36 | 33.17 | 30 | 2.98 | 18.36 | 33.17 | 26.45 | 159 | 0.049 |
| 50 | 〃 | 50 | 2.89 | (18.36) | (33.17) | 50 | 2.89 | 18.36 | 33.17 | 26.46 | 158 | 0.081 |
| 75 | 0 | 75 | 2.50 | 18.36 | 33.17 | 75 | 2.50 | 18.36 | 33.17 | 26.49 | 155 | 0.120 |
| 100 | 〃 | 100 | 1.87 | 18.36 | 33.17 | 100 | 1.87 | 18.36 | 33.17 | 26.53 | 152 | 0.159 |
| 125 | 〃 | 125 | 1.21 | 18.38 | 33.21 | 150 | 1.14 | 18.43 | 33.30 | 26.68 | 137 | 0.232 |
| 150 | 〃 | 150 | 1.14 | 18.43 | 33.30 | 200 | 2.76 | 18.67 | 33.73 | 26.91 | 116 | 0.296 |
| 200 | 〃 | 200 | 2.76 | 18.67 | 33.73 | 300 | 3.16 | 18.88 | 34.11 | 27.17 | 91 | 0.401 |
| 300 | 5 | 299 | 3.16 | 18.88 | 34.11 | 400 | 3.27 | 18.91 | 34.16 | 27.17 | 91 | 0.494 |
| 400 | 〃 | (397) | 3.27 | 18.91 | 34.16 | 500 | 3.19 | 18.95 | 34.24 | 27.27 | 81 | 0.583 |
| 500 | 〃 | 496 | 3.20 | 18.95 | 34.24 | 600 | 3.05 | 18.97 | 34.27 | 27.31 | 78 | 0.666 |
| 600 | 〃 | 596 | 3.06 | 18.97 | 34.27 | 800 | 2.80 | 19.02 | 34.36 | 27.41 | 68 | 0.821 |
| 800 | 〃 | 792 | 2.82 | 19.02 | 34.36 | 1000 | 2.58 | 19.08 | 34.47 | 27.52 | 58 | 0.958 |
| 1010 | 〃 | (1000) | 2.58 | 19.08 | 34.47 | 1200 | 2.32 | 19.11 | 34.52 | 27.58 | 52 | 1.080 |
| 1210 | 〃 | 1197 | 2.34 | 19.11 | 34.52 | 1500 | | | | | | |
| 1510 | 〃 | (1492) | 2.09 | 19.16 | 34.61 | | | | | | | |

**Station Os 3**

Date June 12 Time 1830～2105 (S.M.T.) Latitude 48°09′N Longitude 164°02′E
Wind NNW 4 Weather c Air Temp. 4.2°C Sea NNW 4 Swell NW 2 Col. × Tr. 17m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.3 | (18.39) | (33.22) | 0 | 3.3 | 18.39 | 33.22 | 26.46 | 158 | 0 |
| 10 | 15 | 10 | 3.32 | (18.39) | (33.22) | 10 | 3.32 | 18.39 | 33.22 | 26.46 | 158 | 0.016 |
| 20 | 〃 | 19 | 3.13 | 18.39 | 33.22 | 20 | 3.12 | 18.39 | 33.22 | 26.48 | 156 | 0.032 |
| 30 | 〃 | 29 | 2.86 | 18.38 | 33.21 | 30 | 2.93 | 18.38 | 33.21 | 26.50 | 154 | 0.048 |
| 50 | 〃 | 49 | 2.80 | (18.40) | (33.24) | 50 | 2.80 | 18.40 | 33.24 | 26.53 | 152 | 0.079 |
| 75 | 〃 | 73 | 2.53 | (18.41) | (33.26) | 75 | 2.50 | 18.41 | 33.26 | 26.56 | 149 | 0.117 |
| 100 | 25 | 91 | 2.14 | 18.44 | 33.31 | 100 | 2.00 | 18.47 | 33.37 | 26.68 | 137 | 0.153 |
| 125 | 〃 | 114 | 1.89 | 18.59 | 33.59 | 150 | 2.76 | 18.65 | 33.69 | 26.87 | 119 | 0.218 |
| 150 | 〃 | 136 | 2.51 | 18.59 | 33.59 | 200 | 3.30 | 18.76 | 33.89 | 26.99 | 108 | 0.276 |
| 200 | 〃 | 182 | 3.27 | 18.78 | 33.93 | 300 | 3.35 | 18.86 | 34.07 | 27.13 | 95 | 0.380 |
| 330 | 35 | 267 | 3.36 | 18.84 | 34.04 | 400 | 3.30 | 18.93 | 34.20 | 27.23 | 85 | 0.473 |
| 450 | 〃 | (365) | 3.35 | 18.91 | 34.16 | 500 | 3.18 | 18.98 | 34.29 | 27.32 | 77 | 0.557 |
| 560 | 〃 | (455) | 3.25 | 18.95 | 34.24 | 600 | 3.05 | 19.03 | 34.38 | 27.41 | 68 | 0.633 |
| 670 | 〃 | 543 | 3.16 | 19.00 | 34.33 | 800 | 2.72 | 19.07 | 34.45 | 27.50 | 60 | 0.770 |
| 890 | 〃 | 726 | 2.87 | (19.06) | (34.43) | 1000 | 2.52 | 19.09 | 34.49 | 27.54 | 56 | 0.897 |
| 1110 | 〃 | (910) | 2.61 | 19.09 | 34.49 | 1200 | 2.28 | 19.10 | 34.51 | 27.58 | 52 | 1.017 |
| 1340 | 〃 | (1097) | 2.40 | 19.13 | 34.56 | | | | | | | |
| 1670 | 〃 | (1365) | 2.16 | 19.14 | 34.58 | | | | | | | |

Table 12. (Continued)

**Station Os 4**

Date June 13 Time 0840～0930 (S.M.T.) Latitude 48°38′N Longitude 165°58′E
Wind NW 3 Weather o Air Temp. 4.9°C Sea NW 2 Swell × Col. 4 Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.5 | (18.42) | (33.28) | 0 | 4.5 | 18.42 | 33.28 | 26.39 | 165 | 0 |
| 10 | 24 | 9 | 4.05 | (18.42) | (33.28) | 10 | 4.05 | 18.42 | 33.28 | 26.44 | 160 | 0.016 |
| 25 | 〃 | 23 | 3.97 | (18.42) | (33.28) | 20 | 3.90 | 18.42 | 33.28 | 26.45 | 159 | 0.032 |
| 35 | 〃 | 33 | 3.98 | 18.42 | 33.28 | 30 | 3.85 | 18.42 | 33.28 | 26.46 | 158 | 0.048 |
| 60 | 〃 | 55 | 2.75 | (18.42) | (33.28) | 50 | 3.00 | 18.42 | 33.28 | 26.54 | 151 | 0.079 |
| 95 | 〃 | 85 | 1.79 | 18.43 | 33.30 | 75 | 1.96 | 18.42 | 33.28 | 26.61 | 144 | 0.116 |
| 125 | 29 | 110 | 1.59 | 18.42 | 33.28 | 100 | 1.64 | 18.44 | 33.31 | 26.66 | 139 | 0.151 |
| 155 | 〃 | 135 | 2.34 | 18.62 | 33.64 | 150 | 3.28 | 18.71 | 33.80 | 26.94 | 113 | 0.214 |
| 185 | 〃 | 158 | 3.40 | 18.75 | 33.87 | 200 | 3.42 | 18.85 | 34.05 | 27.10 | 98 | 0.268 |
| 250 | 〃 | 219 | 3.35 | 18.89 | 34.13 | 300 | 3.38 | 18.92 | 34.18 | 27.20 | 88 | 0.364 |
| 370 | 43 | 253 | 3.38 | (18.90) | (34.15) | 400 | 3.28 | 18.94 | 34.22 | 27.24 | 84 | 0.453 |
| 490 | 〃 | (320) | 3.38 | 18.93 | 34.20 | 500 | 3.26 | 18.96 | 34.25 | 27.27 | 81 | 0.539 |
| 620 | 〃 | 407 | 3.33 | (18.95) | (34.24) | 600 | 3.17 | 18.96 | 34.25 | 27.28 | 80 | 0.623 |
| 740 | 〃 | 487 | 3.27 | 18.96 | 34.25 | 800 | 3.01 | 18.98 | 34.29 | 27.33 | 76 | 0.788 |
| 990 | 〃 | (656) | 3.13 | 18.98 | 34.29 | 1000 | 2.83 | 19.00 | 34.33 | 27.39 | 70 | 0.945 |
| 1240 | 〃 | (825) | 3.01 | 18.98 | 34.29 | | | | | | | |
| 1480 | 〃 | (982) | 2.86 | (19.00) | (34.33) | | | | | | | |

**Station Os 5**

Date June 13 Time 1940～2120 (S.M.T.) Latitude 49°06′N Longitude 167°33′E
Wind NNE 2 Weather o Air Temp. 5.5°C Sea × Swell × Col. 4 Tr. 19m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.8 | | | 0 | 4.8 | | | | | |
| 10 | 0 | 10 | 4.59 | | | 10 | 4.59 | | | | | |
| 20 | 〃 | 20 | 4.13 | | | 20 | 4.13 | | | | | |
| 30 | 〃 | 30 | 4.01 | | | 30 | 4.01 | | | | | |
| 50 | 〃 | 50 | 3.36 | | | 50 | 3.36 | | | | | |
| 75 | 〃 | 75 | 2.87 | | | 75 | 2.87 | | | | | |
| 100 | 0 | 100 | 2.71 | | | 100 | 2.71 | | | | | |
| 125 | 〃 | 125 | 3.50 | | | 150 | 3.93 | | | | | |
| 150 | 〃 | 150 | 3.93 | | | 200 | 3.81 | | | | | |
| 200 | 〃 | 200 | 3.81 | | | 300 | 3.69 | | | | | |
| 300 | 7 | 298 | 3.69 | | | 400 | 3.56 | | | | | |
| 400 | 〃 | (398) | 3.56 | | | 500 | 3.42 | | | | | |
| 500 | 〃 | 497 | 3.42 | | | 600 | 3.24 | | | | | |
| 600 | 〃 | 596 | 3.26 | | | 800 | 2.85 | | | | | |
| 800 | 〃 | 795 | 2.88 | | | 1000 | 2.60 | | | | | |
| 1010 | 〃 | 1002 | 2.57 | | | 1200 | 2.35 | | | | | |
| 1210 | 〃 | 1200 | 2.35 | | | | | | | | | |
| 1510 | 〃 | (1498) | 2.07 | | | | | | | | | |

Table 12. (Continued)

**Station Os 6**

Date June 14 Time 2000～2130 (S.M.T.) Latitude 50°00′N Longitude 170°00′E
Wind SSW 5 Weather o Air Temp. 5.8°C Sea SSW 5 Swell ENE 2 Col. × Tr. 16m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.5 | | | 0 | 5.5 | | | | | |
| 10 | 20 | 9 | 5.56 | | | 10 | 5.56 | | | | | |
| 20 | 〃 | 18 | 5.46 | | | 20 | 5.40 | | | | | |
| 30 | 〃 | 28 | 4.99 | | | 30 | 4.98 | | | | | |
| 50 | 〃 | 47 | 4.55 | | | 50 | 4.48 | | | | | |
| 75 | 〃 | 71 | 4.04 | | | 75 | 3.92 | | | | | |
| 125 | 30 | 109 | 3.62 | | | 100 | 3.64 | | | | | |
| 155 | 〃 | 134 | 4.09 | | | 150 | 4.12 | | | | | |
| 185 | 〃 | 160 | 4.12 | | | 200 | 4.03 | | | | | |
| 250 | 〃 | 217 | 3.89 | | | 300 | 3.84 | | | | | |
| 370 | 50 | 260 | 3.82 | | | 400 | 3.62 | | | | | |
| 490 | 〃 | (345) | 3.73 | | | 500 | 3.47 | | | | | |
| 620 | 〃 | 441 | 3.55 | | | 600 | 3.31 | | | | | |
| 740 | 〃 | 514 | 3.45 | | | 800 | 3.00 | | | | | |
| 990 | 〃 | 705 | 3.14 | | | 1000 | 2.70 | | | | | |
| 1240 | 〃 | 883 | 2.87 | | | | | | | | | |
| 1480 | 〃 | 1050 | 2.66 | | | | | | | | | |

**Station Os 7**

Date June 15 Time 1830～1900 (S.M.T.) Latitude 52°00′N Longitude 170°10′E
Wind WS 3 Weather o Air Temp. 5.7°C Sea × Swell × Col. × Tr. 10m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.2 | 18.35 | 33.15 | 0 | 5.2 | 18.35 | 33.15 | 26.20 | 183 | 0 |
| 10 | 8 | 10 | 5.51 | (18.35) | (33.15) | 10 | 5.51 | 18.35 | 33.15 | 26.16 | 187 | 0.019 |
| 20 | 〃 | 20 | 5.42 | (18.35) | (33.15) | 20 | 5.42 | 18.35 | 33.15 | 26.17 | 186 | 0.038 |
| 30 | 〃 | 30 | 5.11 | (18.35) | (33.15) | 30 | 5.11 | 18.35 | 33.15 | 26.21 | 182 | 0.056 |
| 50 | 〃 | 50 | 4.58 | 18.36 | 33.17 | 50 | 4.58 | 18.36 | 33.17 | 26.29 | 174 | 0.092 |
| 80 | 〃 | 80 | 3.43 | (18.36) | (33.17) | 75 | 3.00 | 18.37 | 33.19 | 26.46 | 158 | 0.134 |
| 105 | 8 | 104 | 2.70 | 18.37 | 33.19 | 100 | 2.74 | 18.37 | 33.19 | 26.49 | 155 | 0.173 |
| 130 | 〃 | 129 | 3.06 | 18.49 | 33.40 | 150 | 3.53 | 18.48 | 33.39 | 26.57 | 148 | 0.249 |
| 155 | 〃 | 154 | 3.64 | 18.52 | 33.46 | 200 | 3.93 | 18.62 | 33.64 | 26.72 | 134 | 0.321 |
| 210 | 〃 | 208 | 3.89 | 18.64 | 33.68 | 300 | 3.99 | 18.86 | 34.07 | 27.03 | 104 | 0.443 |
| 310 | 25 | (230) | 4.01 | (18.71) | (33.80) | 400 | 3.87 | 18.91 | 34.16 | 27.14 | 94 | 0.545 |
| 420 | 〃 | (310) | 3.89 | 18.87 | 34.09 | 500 | 3.72 | 18.95 | 34.24 | 27.22 | 86 | 0.639 |
| 520 | 〃 | 381 | 3.89 | 18.91 | 34.16 | 600 | 3.55 | 18.97 | 34.27 | 27.27 | 81 | 0.727 |
| 630 | 〃 | 460 | 3.79 | 18.91 | 34.16 | 800 | 3.24 | 19.02 | 34.36 | 27.38 | 71 | 0.889 |
| 830 | 〃 | 607 | 3.52 | 18.94 | 34.22 | 1000 | 2.95 | 19.06 | 34.43 | 27.45 | 64 | 1.036 |
| 1040 | 〃 | 759 | 3.31 | (19.01) | (34.34) | | | | | | | |
| 1250 | 〃 | 915 | 3.07 | 19.05 | 34.42 | | | | | | | |
| 1560 | 〃 | 1145 | 2.74 | 19.10 | 34.51 | | | | | | | |

Table 12. (Continued)

**Station Os 8**

Date June 16 Time 0830～1000 (S.M.T.) Latitude 53°44′N Longitude 170°10′E
Wind SSW 3 Weather r Air Temp. 5.7°C Sea × Swell SW 1 Col. 4 Tr. 11m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.1 | (18.28) | (33.03) | 0 | 5.1 | 18.28 | 33.03 | 26.11 | 192 | 0 |
| 10 | 2 | 10 | 5.10 | 18.28 | 33.03 | 10 | 5.10 | 18.28 | 33.03 | 26.11 | 192 | 0.019 |
| 20 | 〃 | 20 | 4.59 | 18.31 | 33.08 | 20 | 4.59 | 18.31 | 33.08 | 26.20 | 183 | 0.038 |
| 30 | 〃 | 30 | 4.19 | 18.32 | 33.10 | 30 | 4.19 | 18.32 | 33.10 | 26.27 | 176 | 0.056 |
| 50 | 〃 | 50 | 3.73 | (18.32) | (33.10) | 50 | 3.73 | 18.32 | 33.10 | 26.31 | 173 | 0.091 |
| 75 | 〃 | 75 | 3.01 | (18.34) | (33.13) | 75 | 3.01 | 18.34 | 33.13 | 26.40 | 164 | 0.133 |
| 100 | 5 | 100 | 2.42 | 18.36 | 33.17 | 100 | 2.42 | 18.36 | 33.17 | 26.50 | 154 | 0.173 |
| 125 | 〃 | 125 | 2.47 | 18.46 | 33.35 | 150 | 2.51 | 18.52 | 33.46 | 26.71 | 135 | 0.246 |
| 150 | 〃 | 150 | 2.51 | 18.52 | 33.46 | 200 | 3.71 | 18.71 | 33.80 | 26.87 | 119 | 0.310 |
| 200 | 〃 | 200 | 3.71 | 18.71 | 33.80 | 300 | 3.83 | 18.83 | 34.02 | 27.04 | 103 | 0.424 |
| 310 | 10 | 300 | 3.83 | 18.83 | 34.02 | 400 | 3.72 | 18.88 | 34.11 | 27.12 | 96 | 0.527 |
| 420 | 〃 | (403) | 3.62 | 18.88 | 34.11 | 500 | 3.52 | 18.93 | 34.20 | 27.20 | 88 | 0.622 |
| 520 | 〃 | (500) | 3.58 | 18.93 | 34.20 | 600 | 3.30 | 18.97 | 34.27 | 27.29 | 80 | 0.710 |
| 630 | 〃 | 605 | (3.29) | 18.97 | 34.27 | 800 | 2.85 | 19.01 | 34.34 | 27.39 | 70 | 0.869 |
| 830 | 〃 | (795) | 2.87 | 19.01 | 34.34 | 1000 | 2.57 | 19.05 | 34.42 | 27.48 | 62 | 1.012 |
| 1040 | 〃 | (994) | 2.58 | 19.05 | 34.42 | 1200 | 2.41 | 19.08 | 34.47 | 27.53 | 57 | 1.144 |
| 1250 | 〃 | (1194) | 2.45 | 19.08 | 34.47 | | | | | | | |
| 1560 | 〃 | 1485 | 2.14 | 19.13 | 34.56 | | | | | | | |

**Station Os 9**

Date June 16 Time 1930～2100 (S.M.T.) Latitude 55°00′N Longitude 170°30′E
Wind SSW 3 Weather Air Temp. 5.7°C Sea × Swell × Col. × Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.1 | 18.29 | 33.04 | 0 | 5.1 | 18.29 | 33.04 | 26.12 | 191 | 0 |
| 10 | 3 | 10 | 5.31 | 18.30 | 33.06 | 10 | 5.31 | 18.30 | 33.06 | 26.11 | 192 | 0.019 |
| 20 | 〃 | 20 | 4.69 | (18.32) | (33.10) | 20 | 4.69 | 18.32 | 33.10 | 26.21 | 182 | 0.038 |
| 30 | 〃 | 30 | 4.14 | 18.34 | 33.13 | 30 | 4.14 | 18.34 | 33.13 | 26.30 | 173 | 0.056 |
| 50 | 〃 | 50 | 3.55 | 18.34 | 33.13 | 50 | 3.55 | 18.34 | 33.13 | 26.36 | 168 | 0.090 |
| 75 | 〃 | 75 | 2.44 | 18.44 | 33.31 | 75 | 2.44 | 18.44 | 33.31 | 26.60 | 145 | 0.129 |
| 100 | 15 | 97 | 2.23 | 18.49 | 33.40 | 100 | 2.25 | 18.52 | 33.46 | 26.73 | 133 | 0.164 |
| 125 | 〃 | 121 | 2.48 | (18.60) | (33.60) | 150 | 3.76 | 18.70 | 33.78 | 26.86 | 120 | 0.228 |
| 150 | 〃 | 145 | 3.73 | 18.68 | 33.75 | 200 | 3.88 | 18.79 | 33.95 | 26.98 | 109 | 0.286 |
| 200 | 〃 | 193 | 3.89 | 18.78 | 33.93 | 300 | 3.75 | 18.88 | 34.11 | 27.11 | 97 | 0.392 |
| 300 | 20 | 282 | 3.77 | 18.87 | 34.09 | 400 | 3.63 | 18.93 | 34.20 | 27.20 | 88 | 0.488 |
| 400 | 〃 | 355 | 3.69 | (18.91) | (34.16) | 500 | 3.49 | 18.96 | 34.25 | 27.25 | 83 | 0.577 |
| 500 | 〃 | 467 | 3.51 | (18.95) | (34.24) | 600 | 3.32 | 18.99 | 34.31 | 27.32 | 77 | 0.661 |
| 600 | 〃 | 561 | 3.40 | 18.98 | 34.29 | 800 | 3.00 | 19.01 | 34.34 | 27.37 | 72 | 0.819 |
| 800 | 〃 | 755 | 3.08 | 19.01 | 34.34 | 1000 | 2.71 | 19.05 | 34.42 | 27.37 | 72 | 0.974 |
| 1010 | 〃 | (952) | 2.77 | (19.04) | (34.40) | 1200 | 2.51 | 19.08 | 34.47 | 27.53 | 57 | 1.116 |
| 1210 | 〃 | 1139 | 2.58 | (19.07) | (34.45) | | | | | | | |
| 1510 | 〃 | 1420 | 2.27 | 19.12 | 34.54 | | | | | | | |

Table 12. (Continued)

**Station Os 10**

Date June 17 Time 1830～2000 (S.M.T.) Latitude 57°00′N Longitude 170°30′E
Wind S 4 Weather r Air Temp. 5.1°C Sea S 4 Swell S 3 Col. × Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.3 | 18.29 | 33.04 | 0 | 4.3 | 18.29 | 33.04 | 26.22 | 181 | 0 |
| 10 | 7 | 10 | 4.18 | 18.39 | 33.22 | 10 | 4.18 | 18.39 | 33.22 | 26.38 | 166 | 0.017 |
| 20 | 〃 | 20 | 3.31 | 18.39 | 33.22 | 20 | 3.31 | 18.39 | 33.22 | 26.46 | 158 | 0.033 |
| 30 | 〃 | 30 | 3.01 | (18.39) | (33.22) | 30 | 3.01 | 18.39 | 33.22 | 26.50 | 154 | 0.049 |
| 50 | 〃 | 50 | 1.88 | (18.40) | (33.24) | 50 | 1.88 | 18.40 | 33.24 | 26.60 | 145 | 0.079 |
| 75 | 〃 | 75 | (1.50) | (18.40) | (33.24) | 75 | 1.50 | 18.40 | 33.24 | 26.63 | 142 | 0.115 |
| 105 | 18 | 100 | 1.21 | 18.44 | 33.31 | 100 | 1.21 | 18.44 | 33.31 | 26.70 | 135 | 0.150 |
| 130 | 〃 | 124 | 1.32 | (18.46) | (33.50) | 150 | 1.25 | 18.52 | 33.46 | 26.81 | 125 | 0.215 |
| 155 | 〃 | 148 | 1.23 | 18.51 | 33.44 | 200 | 3.25 | 18.72 | 33.82 | 26.94 | 113 | 0.275 |
| 205 | 〃 | 195 | 3.11 | 18.71 | 33.80 | 300 | 3.77 | 18.84 | 34.04 | 27.06 | 101 | 0.385 |
| 330 | 30 | 269 | 3.78 | 18.82 | 34.00 | 400 | 3.63 | 18.88 | 34.11 | 27.13 | 95 | 0.486 |
| 450 | 〃 | (367) | 3.69 | (18.87) | (34.09) | 500 | 3.44 | 18.92 | 34.18 | 27.21 | 87 | 0.580 |
| 560 | 〃 | 460 | 3.45 | (18.90) | (34.15) | 600 | 3.26 | 18.94 | 34.22 | 27.25 | 83 | 0.669 |
| 670 | 〃 | 548 | 3.32 | (18.93) | (34.20) | 800 | 2.90 | 19.00 | 34.33 | 27.38 | 71 | 0.832 |
| 890 | 〃 | (735) | 3.01 | 18.97 | 34.27 | 1000 | 2.58 | 19.07 | 34.45 | 27.51 | 59 | 0.973 |
| 1110 | 〃 | (920) | 2.72 | 19.04 | 34.40 | | | | | | | |
| 1340 | 〃 | 1110 | 2.57 | 19.12 | 34.54 | | | | | | | |

**Station Os 11**

Date June 18 Time 1400～1500 (S.M.T.) Latitude 57°00′N Longitude 175°03′E
Wind S 3 Weather o Air Temp. 5.3°C Sea S 3 Swell SSW 2 Col. × Tr. 12m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.9 | | | 0 | 4.9 | | | | | |
| 10 | 8 | 10 | 4.80 | | | 10 | 4.80 | | | | | |
| 20 | 〃 | 20 | 4.33 | | | 20 | 4.33 | | | | | |
| 30 | 〃 | 30 | 3.51 | | | 30 | 3.51 | | | | | |
| 50 | 〃 | 50 | 2.67 | | | 50 | 2.67 | | | | | |
| 75 | 23 | 69 | 2.15 | | | 75 | 2.05 | | | | | |
| 100 | 〃 | 72 | 1.91 | | | 100 | 1.76 | | | | | |
| 125 | 〃 | 115 | 1.72 | | | 150 | 2.10 | | | | | |
| 150 | 〃 | 138 | 1.71 | | | 200 | 3.63 | | | | | |
| 200 | 〃 | 184 | 3.50 | | | 300 | 3.82 | | | | | |
| 330 | 25 | 307 | 3.79 | | | 400 | 3.67 | | | | | |
| 450 | 〃 | 419 | 3.61 | | | 500 | 3.51 | | | | | |
| 560 | 〃 | 520 | 3.52 | | | 600 | 3.88 | | | | | |
| 670 | 〃 | 622 | 3.36 | | | 800 | 3.10 | | | | | |
| 890 | 〃 | 828 | 3.06 | | | 1000 | 2.81 | | | | | |
| 1110 | 〃 | 1033 | 2.79 | | | | | | | | | |

Table 12. (Continued)

**Station Os 12**

Date June 19 Time 1950~2030 (S.M.T.) Latitude 55°03′N Longitude 175°07′E

Wind NW 2 Weather o Air Temp. 5.4°C Sea NW 2 Swell SE 1 Col. × Tr. 14m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 6.3 | 18.35 | 33.15 | 0 | 6.3 | 18.35 | 33.15 | 26.08 | 194 | 0 |
| 10 | 4 | 10 | 5.53 | 18.34 | 33.13 | 10 | 5.53 | 18.34 | 33.13 | 26.16 | 187 | 0.019 |
| 20 | 〃 | 20 | 5.40 | (18.35) | (33.15) | 20 | 5.40 | 18.35 | 33.15 | 26.19 | 184 | 0.038 |
| 30 | 〃 | 30 | 4.26 | 18.35 | 33.15 | 30 | 4.26 | 18.36 | 33.17 | 26.32 | 172 | 0.056 |
| 50 | 〃 | 50 | 3.35 | 18.37 | 33.19 | 50 | 3.35 | 18.37 | 33.19 | 26.43 | 161 | 0.089 |
| 75 | 4 | 75 | 2.62 | (18.38) | (33.21) | 75 | 2.62 | 18.38 | 33.21 | 26.51 | 154 | 0.128 |
| 100 | 〃 | 100 | 2.28 | (18.40) | (33.24) | 100 | 2.28 | 18.40 | 33.24 | 26.57 | 148 | 0.166 |
| 125 | 〃 | 125 | 2.04 | 18.43 | 33.30 | 150 | 2.21 | 18.48 | 33.39 | 26.69 | 136 | 0.238 |
| 150 | 〃 | 150 | 2.21 | 18.48 | 33.39 | 200 | 3.94 | 18.64 | 33.68 | 26.76 | 130 | 0.305 |
| 200 | 〃 | 200 | 3.94 | (18.64) | (33.68) | 300 | 3.83 | 18.82 | 34.00 | 27.03 | 104 | 0.424 |
| 300 | 26 | 277 | 3.87 | 18.77 | 33.91 | 400 | 3.69 | 18.88 | 34.11 | 27.13 | 95 | 0.526 |
| 400 | 〃 | (370) | 3.75 | (18.87) | (34.09) | 500 | 3.54 | 18.91 | 34.16 | 27.19 | 89 | 0.621 |
| 500 | 〃 | 465 | 3.61 | 18.94 | 34.22 | 600 | 3.40 | 18.94 | 34.22 | 27.24 | 84 | 0.711 |
| 600 | 〃 | 557 | 3.50 | 18.93 | 34.20 | 800 | 3.12 | 18.99 | 34.31 | 27.34 | 75 | 0.879 |
| 800 | 〃 | 754 | 3.20 | 18.98 | 34.29 | 1000 | 2.84 | 19.02 | 34.36 | 27.41 | 68 | 1.033 |
| 1010 | 〃 | (940) | 2.88 | 19.03 | 34.38 | 1200 | 2.58 | 19.07 | 34.45 | 27.51 | 59 | 1.173 |
| 1210 | 〃 | 1124 | 2.66 | 19.05 | 34.42 | | | | | | | |
| 1510 | 〃 | (1400) | 2.31 | 19.11 | 34.52 | | | | | | | |

**Station Os 13**

Date June 20 Time 1925~2030 (S.M.T.) Latitude 53°00′N Longitude 175°05′E

Wind SW 3 Weather bc Air Temp. 6.1°C Sea SW 3 Swell S 1 Col. × Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | (5.8) | (18.38) | (33.21) | 0 | 5.8 | 18.38 | 33.21 | 26.19 | 184 | 0 |
| 10 | 8 | 10 | 5.84 | 18.38 | 33.21 | 10 | 5.84 | 18.38 | 33.21 | 26.19 | 184 | 0.018 |
| 20 | 〃 | 20 | 5.15 | 18.37 | 33.19 | 20 | 5.15 | 18.37 | 33.19 | 26.24 | 179 | 0.036 |
| 30 | 〃 | 30 | 4.95 | 18.37 | 33.19 | 30 | 4.95 | 18.37 | 33.19 | 26.27 | 176 | 0.054 |
| 50 | 〃 | 50 | 4.60 | (18.38) | (33.21) | 50 | 4.60 | 18.38 | 33.21 | 26.31 | 173 | 0.089 |
| 75 | 6 | 75 | 3.61 | (18.38) | (33.21) | 75 | 3.61 | 18.38 | 33.21 | 26.42 | 162 | 0.131 |
| 100 | 〃 | 99 | 3.09 | (18.39) | (33.22) | 100 | 3.09 | 18.39 | 33.22 | 26.49 | 155 | 0.171 |
| 125 | 〃 | 124 | 3.30 | 18.42 | 33.28 | 150 | 3.45 | 18.47 | 33.37 | 26.57 | 148 | 0.247 |
| 150 | 〃 | 149 | 3.44 | 18.47 | 33.37 | 200 | 3.94 | 18.65 | 33.69 | 26.78 | 128 | 0.317 |
| 200 | 〃 | 199 | 3.94 | 18.65 | 33.69 | 300 | 4.03 | 18.76 | 33.89 | 26.92 | 115 | 0.441 |
| 300 | 24 | 275 | 4.07 | 18.74 | 33.86 | 400 | 3.91 | 18.82 | 34.00 | 27.02 | 105 | 0.554 |
| 400 | 〃 | 373 | 3.91 | 18.81 | 33.98 | 500 | 3.78 | 18.85 | 34.05 | 27.08 | 99 | 0.660 |
| 500 | 〃 | 460 | 3.91 | 18.84 | 34.04 | 600 | 3.64 | 18.89 | 34.13 | 27.15 | 93 | 0.760 |
| 600 | 〃 | (555) | 3.68 | 18.87 | 34.09 | 800 | 3.38 | 18.94 | 34.22 | 27.24 | 84 | 0.947 |
| 800 | 〃 | 745 | 3.43 | 18.95 | 34.24 | 1000 | 3.10 | 19.01 | 34.34 | 27.38 | 71 | 1.115 |
| 1010 | 〃 | 943 | 3.18 | 19.01 | 34.34 | | | | | | | |
| 1210 | 〃 | 1135 | 2.91 | 19.04 | 34.40 | | | | | | | |

Table 12. (Continued)

**Station Os 14**

Date June 21 Time 1830～1910 (S.M.T.) Latitude 53°05′N Longitude 178°05′E
Wind SSE 4 Weather r Air Temp. 5.6°C Sea SSE 4 Swell S 2 Col. × Tr. 14m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.9 | 18.37 | 33.19 | 0 | 5.9 | 18.37 | 33.19 | 26.16 | 187 | 0 |
| 10 | 15 | 10 | 5.65 | 18.37 | 33.19 | 10 | 5.65 | 18.37 | 33.19 | 26.19 | 184 | 0.019 |
| 20 | 〃 | 19 | 5.26 | (18.37) | (33.19) | 20 | 5.26 | 18.37 | 33.19 | 26.23 | 180 | 0.037 |
| 30 | 〃 | 29 | 5.00 | 18.37 | 33.19 | 30 | 5.00 | 18.37 | 33.19 | 26.26 | 177 | 0.055 |
| 50 | 〃 | 49 | 4.48 | 18.39 | 33.22 | 50 | 4.39 | 18.39 | 33.22 | 26.35 | 169 | 0.090 |
| 75 | 18 | 72 | 3.68 | 18.39 | 33.22 | 75 | 3.58 | 18.40 | 33.24 | 26.45 | 159 | 0.131 |
| 100 | 〃 | 95 | 3.07 | 18.43 | 33.30 | 100 | 3.04 | 18.43 | 33.30 | 26.54 | 151 | 0.170 |
| 125 | 〃 | 119 | 3.17 | 18.47 | 33.37 | 150 | 3.45 | 18.58 | 33.57 | 26.72 | 134 | 0.242 |
| 150 | 〃 | 143 | 3.37 | 18.53 | 33.48 | 200 | 3.84 | 18.74 | 33.86 | 26.91 | 116 | 0.305 |
| 200 | 〃 | 190 | (3.80) | 18.72 | 33.82 | 300 | 4.02 | 18.82 | 34.00 | 27.00 | 107 | 0.419 |
| 330 | 32 | 317 | 4.00 | 18.83 | 34.02 | 400 | 3.91 | 18.89 | 34.13 | 27.12 | 96 | 0.523 |
| 450 | 〃 | (431) | 3.80 | 18.94 | 34.22 | 500 | 3.78 | 18.94 | 34.22 | 27.20 | 88 | 0.619 |
| 560 | 〃 | 536 | 3.69 | 18.94 | 34.22 | 600 | 3.60 | 18.97 | 34.27 | 27.27 | 81 | 0.708 |
| 670 | 〃 | (642) | 3.58 | 18.99 | 34.31 | 800 | 3.32 | 19.00 | 34.33 | 27.33 | 76 | 0.875 |
| 890 | 〃 | (853) | 3.18 | 19.01 | 34.34 | 1000 | 3.04 | 19.01 | 34.34 | 27.38 | 71 | 1.035 |
| 1110 | 43 | (1068) | 2.95 | 19.01 | 34.34 | | | | | | | |

**Station Os 15**

Date June 21 Time 0830～0930 (S.M.T.) Latitude 52°40′N Longitude 179°48′W
Wind SE 6 Weather r Air Temp. 5.6°C Sea SE 4 Swell SSE 4 Col. × Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.1 | | | 0 | 5.1 | | | | | |
| 10 | 26 | 9 | 5.08 | | | 10 | 5.06 | | | | | |
| 20 | 〃 | 18 | 5.02 | | | 20 | 5.02 | | | | | |
| 30 | 〃 | 27 | 5.00 | | | 30 | 4.98 | | | | | |
| 50 | 〃 | 45 | 4.81 | | | 50 | 4.66 | | | | | |
| 80 | 43 | 59 | 4.43 | | | 75 | 4.26 | | | | | |
| 105 | 〃 | 77 | 4.24 | | | 100 | 4.22 | | | | | |
| 130 | 〃 | 95 | 4.24 | | | 150 | 4.11 | | | | | |
| 155 | 〃 | 114 | 4.20 | | | 200 | 3.97 | | | | | |
| 210 | 〃 | 154 | 4.10 | | | 300 | 3.88 | | | | | |
| 430 | 52 | (135) | (4.16) | | | 400 | 3.88 | | | | | |
| 580 | 〃 | (182) | 4.01 | | | | | | | | | |
| 720 | 〃 | (225) | (3.93) | | | | | | | | | |
| 860 | 〃 | (267) | 3.92 | | | | | | | | | |
| 1150 | 〃 | (355) | 3.85 | | | | | | | | | |
| 1440 | 〃 | (430) | 3.88 | | | | | | | | | |

Table 12. (Continued)

**Station Os 16**

Date June 21 Time 1600～1700 (S.M.T.) Latitude 52°36′N Longitude 179°09′W
Wind S 5 Weather r Air Temp. 5.6°C Sea S 5 Swell S 3 Col. × Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.7 | 18.37 | 33.19 | 0 | 5.7 | 18.37 | 33.19 | 26.17 | 186 | 0 |
| 10 | 36 | 8 | 5.84 | 18.37 | 33.19 | 10 | 5.83 | 18.37 | 33.19 | 26.18 | 185 | 0.019 |
| 20 | 〃 | 16 | 5.81 | (18.38) | (33.21) | 20 | 5.70 | 18.39 | 33.22 | 26.21 | 182 | 0.037 |
| 35 | 〃 | 28 | 5.29 | 18.40 | 33.24 | 30 | 5.10 | 18.40 | 33.24 | 26.29 | 174 | 0.055 |
| 55 | 〃 | 44 | 4.30 | 18.42 | 33.28 | 50 | 4.28 | 18.42 | 33.28 | 26.41 | 163 | 0.089 |
| 85 | 29 | 74 | 4.16 | (18.46) | (33.35) | 75 | 4.13 | 18.46 | 33.35 | 26.49 | 155 | 0.129 |
| 110 | 〃 | 97 | 4.04 | (18.50) | (33.42) | 100 | 4.02 | 18.50 | 33.42 | 26.55 | 150 | 0.167 |
| 140 | 〃 | 122 | 3.86 | 18.55 | 33.51 | 150 | 3.93 | 18.58 | 33.57 | 26.68 | 137 | 0.240 |
| 165 | 〃 | 144 | 3.98 | 18.57 | 33.55 | | | | | | | |
| 220 | 〃 | 193 | 3.89 | 18.67 | 33.73 | | | | | | | |

**Station Os 17**

Date June 22 Time 1330～1445 (S.M.T.) Latitude 52°54′N Longitude 178°54′W
Wind SSW 4 Weather r Air Temp. 6.2°C Sea SSW 3 Swell SE 1 Col. × Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.8 | 18.45 | 33.33 | 0 | 5.8 | 18.45 | 33.33 | 26.28 | 175 | 0 |
| 10 | 10 | 10 | 5.68 | 18.45 | 33.33 | 10 | 5.68 | 18.45 | 33.33 | 26.30 | 173 | 0.017 |
| 20 | 〃 | 20 | 5.68 | (18.45) | (33.33) | 20 | 5.68 | 18.45 | 33.33 | 26.30 | 173 | 0.034 |
| 30 | 〃 | 30 | 5.60 | 18.46 | 33.35 | 30 | 5.60 | 18.46 | 33.35 | 26.32 | 172 | 0.051 |
| 50 | 〃 | 49 | 4.39 | 18.45 | 33.33 | 50 | 4.35 | 18.45 | 33.33 | 26.44 | 160 | 0.084 |
| 75 | 〃 | 74 | 4.17 | 18.45 | 33.33 | 75 | 4.18 | 18.45 | 33.33 | 26.47 | 157 | 0.124 |
| 100 | 10 | 98 | 4.27 | 18.47 | 33.37 | 100 | 4.27 | 18.47 | 33.37 | 26.49 | 155 | 0.163 |
| 125 | 〃 | 123 | 4.24 | 18.52 | 33.46 | 150 | 4.12 | 18.52 | 33.46 | 26.57 | 148 | 0.240 |
| 150 | 〃 | 148 | 4.13 | 18.52 | 33.46 | 200 | 4.02 | 18.58 | 33.57 | 26.67 | 138 | 0.313 |
| 200 | 〃 | 197 | (4.02) | 18.58 | 33.57 | 300 | 3.88 | 18.67 | 33.73 | 26.80 | 126 | 0.447 |
| 310 | 20 | 294 | 3.95 | 18.67 | 33.73 | 400 | 3.73 | 18.78 | 33.93 | 26.98 | 109 | 0.567 |
| 420 | 〃 | 397 | 3.73 | 18.78 | 33.93 | 500 | 3.60 | 18.83 | 34.02 | 27.06 | 101 | 0.676 |
| 520 | 〃 | 493 | 3.57 | 18.83 | 34.02 | 600 | 3.48 | 18.89 | 34.13 | 27.16 | 92 | 0.777 |
| 630 | 〃 | 597 | 3.49 | 18.89 | 34.13 | 800 | 3.22 | 18.95 | 34.24 | 27.28 | 80 | 0.959 |
| 830 | 〃 | 792 | 3.23 | (18.94) | (34.22) | 1000 | 2.94 | 18.96 | 34.25 | 27.32 | 77 | 1.128 |
| 1040 | 〃 | 991 | 2.96 | (18.96) | (34.25) | 1200 | 2.70 | 18.97 | 34.27 | 27.35 | 74 | 1.292 |
| 1250 | 〃 | 1189 | 2.75 | (18.97) | (34.27) | | | | | | | |
| 1560 | 〃 | (1485) | 2.30 | 18.97 | 34.27 | | | | | | | |

Table 12. (Continued)

**Station Os 18**

Date June 23 Time 2000～2035 (S.M.T.) Latitude 51°00′N Longitude 179°31′W
Wind WNW 3 Weather o Air Temp. 6.2°C Sea WNW 2 Swell WSW 2 Col. × Tr. 11m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.4 | 18.24 | 32.95 | 0 | 6.4 | 18.24 | 32.95 | 25.91 | 211 | 0 |
| 10 | 4 | 10 | 6.38 | (18.25) | (32.97) | 10 | 6.38 | 18.25 | 32.97 | 25.92 | 210 | 0.021 |
| 20 | 〃 | 20 | 5.58 | (18.27) | (33.01) | 20 | 5.58 | 18.27 | 33.01 | 26.06 | 196 | 0.041 |
| 30 | 〃 | 30 | 5.38 | 18.29 | 33.04 | 30 | 5.38 | 18.29 | 33.04 | 26.10 | 192 | 0.060 |
| 50 | 〃 | 50 | 4.49 | 18.29 | 33.04 | 50 | 4.49 | 18.29 | 33.04 | 26.20 | 183 | 0.098 |
| 80 | 17 | 77 | 4.26 | 18.33 | 33.12 | 75 | 4.27 | 18.33 | 33.12 | 26.28 | 175 | 0.143 |
| 105 | 〃 | 101 | 4.59 | 18.52 | 33.46 | 100 | 4.58 | 18.52 | 33.46 | 26.52 | 153 | 0.184 |
| 130 | 〃 | 125 | (4.92) | 18.57 | 33.55 | 150 | 4.94 | 18.65 | 33.69 | 26.67 | 138 | 0.258 |
| 155 | 〃 | 149 | 4.94 | 18.65 | 33.69 | 200 | 4.28 | 18.72 | 33.82 | 26.83 | 123 | 0.324 |
| 210 | 〃 | 201 | 4.28 | 18.72 | 33.82 | 300 | 3.87 | 18.84 | 34.04 | 27.05 | 102 | 0.439 |
| 310 | 35 | 247 | 4.04 | (18.81) | (33.98) | 400 | 3.72 | 18.90 | 34.15 | 27.15 | 93 | 0.540 |
| 420 | 〃 | 344 | 3.81 | (18.89) | (34.13) | 500 | 3.55 | 18.94 | 34.22 | 27.23 | 85 | 0.632 |
| 520 | 〃 | 429 | 3.72 | 18.94 | 34.22 | 600 | 3.39 | 18.98 | 34.29 | 27.30 | 79 | 0.718 |
| 630 | 〃 | 530 | 3.45 | 18.96 | 34.25 | 800 | 3.09 | 19.03 | 34.38 | 27.41 | 68 | 0.874 |
| 830 | 〃 | 705 | 3.15 | (19.02) | (34.36) | | | | | | | |
| 1040 | 〃 | 890 | 2.95 | 19.07 | 34.45 | | | | | | | |

**Station Os 19**

Date June 24 Time 0415～0445 (S.M.T.) Latitude 49°58′N Longitude 179°32′W
Wind NNW 2 Weather o Air Temp. 5.9°C Sea NNW 2 Swell SW 1 Col. × Tr. 14m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.1 | (18.29) | (33.04) | 0 | 6.1 | 18.29 | 33.04 | 26.02 | 200 | 0 |
| 10 | 8 | 10 | 6.20 | (18.29) | (33.04) | 10 | 6.20 | 18.29 | 33.04 | 26.01 | 201 | 0.020 |
| 20 | 〃 | 20 | 5.18 | (18.29) | (33.04) | 20 | 5.18 | 18.29 | 33.04 | 26.12 | 191 | 0.040 |
| 30 | 〃 | 30 | 4.90 | 18.29 | 33.04 | 30 | 4.90 | 18.29 | 33.04 | 26.16 | 187 | 0.059 |
| 50 | 〃 | 50 | 4.65 | 18.33 | 33.12 | 50 | 4.65 | 18.33 | 33.12 | 26.24 | 179 | 0.096 |
| 75 | 〃 | 74 | 3.01 | 18.33 | 33.12 | 75 | 3.01 | 18.33 | 33.12 | 26.40 | 164 | 0.136 |
| 100 | 〃 | 98 | 2.67 | 18.45 | 33.33 | 100 | 2.67 | 18.46 | 33.35 | 26.62 | 143 | 0.177 |
| 125 | 〃 | 123 | 3.01 | 18.64 | 33.68 | 150 | 3.37 | 18.69 | 33.68 | 26.89 | 117 | 0.243 |
| 150 | 〃 | 148 | 3.36 | 18.69 | 33.77 | 200 | 3.52 | 18.76 | 33.89 | 26.97 | 110 | 0.301 |
| 200 | 〃 | 197 | 3.49 | 18.76 | 33.89 | 300 | 3.62 | 18.82 | 34.00 | 27.05 | 102 | 0.409 |
| 210 | 22 | 279 | 3.64 | 18.82 | 34.00 | 400 | 3.53 | 18.87 | 34.09 | 27.13 | 95 | 0.510 |
| 420 | 〃 | (380) | 3.49 | 18.86 | 34.07 | 500 | 3.41 | 18.91 | 34.16 | 27.20 | 88 | 0.605 |
| 520 | 〃 | (471) | 3.49 | 18.91 | 34.16 | 600 | 3.30 | 18.95 | 34.24 | 27.27 | 81 | 0.693 |
| 630 | 〃 | (572) | (3.33) | 18.94 | 34.22 | 800 | 3.06 | 19.00 | 34.33 | 27.37 | 72 | 0.855 |
| 830 | 〃 | (755) | 3.13 | (19.00) | (34.33) | 1000 | 2.76 | 19.06 | 34.43 | 27.48 | 62 | 1.000 |
| 1040 | 〃 | 945 | 2.78 | 19.06 | 34.43 | 1200 | 2.47 | 19.10 | 34.51 | 27.56 | 54 | 1.129 |
| 1250 | 〃 | 1137 | 2.60 | 19.09 | 34.49 | | | | | | | |
| 1560 | 〃 | (1410) | 2.18 | 19.11 | 34.52 | | | | | | | |

Table 12. (Continued)

**Station Os 20**

Date June 24 Time 1250～1345 (S.M.T.) Latitude 49°01′N Longitude 179°25′W

Wind NW 2 Weather c Air Temp. 6.8°C Sea NW 2 Swell WNW 2 Col. 4 Tr. 16m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.8 | (18.29) | (33.04) | 0 | 6.8 | 18.29 | 33.04 | 25.93 | 209 | 0 |
| 10 | 7 | 10 | 5.82 | 18.29 | 33.04 | 10 | 5.82 | 18.29 | 33.04 | 26.05 | 197 | 0.020 |
| 20 | 〃 | 20 | 5.21 | (18.29) | (33.04) | 20 | 5.21 | 18.29 | 33.04 | 26.12 | 191 | 0.039 |
| 30 | 〃 | 30 | 5.10 | (18.29) | (33.04) | 30 | 5.10 | 18.29 | 33.04 | 26.14 | 189 | 0.058 |
| 50 | 〃 | 50 | 4.83 | (18.30) | (33.06) | 50 | 4.83 | 18.30 | 33.06 | 26.18 | 185 | 0.096 |
| 75 | 7 | 75 | 3.59 | 18.31 | 33.08 | 75 | 3.59 | 18.31 | 33.08 | 26.32 | 172 | 0.141 |
| 100 | 〃 | 99 | 2.98 | 18.37 | 33.19 | 100 | 2.98 | 18.37 | 33.19 | 26.47 | 157 | 0.182 |
| 125 | 〃 | 124 | 2.95 | (18.45) | (33.33) | 150 | 3.12 | 18.58 | 33.57 | 26.75 | 131 | 0.255 |
| 150 | 〃 | 149 | 3.12 | 18.58 | 33.57 | 200 | 3.30 | 18.75 | 33.87 | 26.98 | 109 | 0.316 |
| 200 | 〃 | 199 | 3.26 | 18.75 | 33.87 | 300 | 3.50 | 18.82 | 34.00 | 27.06 | 101 | 0.423 |
| 310 | 10 | 296 | 3.49 | 18.82 | 34.00 | 400 | 3.47 | 18.88 | 34.11 | 27.15 | 93 | 0.522 |
| 420 | 〃 | 406 | 3.46 | 18.89 | 34.13 | 500 | 3.39 | 18.94 | 34.22 | 27.26 | 82 | 0.612 |
| 520 | 〃 | 500 | 3.39 | 18.94 | 34.22 | 600 | 3.27 | 18.98 | 34.29 | 27.32 | 77 | 0.695 |
| 630 | 〃 | 607 | 3.26 | 18.98 | 34.29 | 800 | 2.98 | 19.04 | 34.40 | 27.42 | 67 | 0.848 |
| 830 | 〃 | 802 | 2.96 | (19.04) | (34.40) | 1000 | 2.70 | 19.08 | 34.47 | 27.51 | 59 | 0.985 |
| 1040 | 〃 | 1008 | 2.68 | 19.08 | 34.47 | 1200 | 2.50 | 19.10 | 34.51 | 27.56 | 54 | 1.111 |
| 1250 | 〃 | (1215) | 2.49 | 19.11 | 34.52 | 1500 | 2.14 | 19.16 | 34.61 | 27.68 | 43 | 1.278 |
| 1560 | 〃 | (1518) | 2.10 | 19.16 | 34.61 | | | | | | | |

**Station Os 21**

Date June 24 Time 1830～1910 (S.M.T.) Latitude 48°16′N Longitude 179°32′W

Wind NE 1 Weather o Air Temp. 6.2°C Sea W 1 Swell NNW 1 Col. 4 Tr. 16m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | (7.0) | (18.25) | (32.97) | 0 | 7.0 | 18.25 | 32.97 | 25.81 | 220 | 0 |
| 10 | 6 | 10 | 6.42 | 18.25 | 32.97 | 10 | 6.42 | 18.25 | 32.97 | 25.90 | 211 | 0.022 |
| 20 | 〃 | 20 | (5.80) | 18.27 | 33.01 | 20 | 5.80 | 18.27 | 33.01 | 26.01 | 201 | 0.043 |
| 30 | 〃 | 30 | (5.27) | (18.28) | (33.03) | 30 | 5.27 | 18.28 | 33.03 | 26.09 | 193 | 0.063 |
| 50 | 〃 | 50 | 4.79 | 18.30 | 33.06 | 50 | 4.79 | 18.30 | 33.06 | 26.17 | 186 | 0.101 |
| 75 | 0 | 75 | 3.63 | 18.30 | 33.06 | 75 | 3.63 | 18.30 | 33.06 | 26.29 | 174 | 0.146 |
| 100 | 〃 | 100 | 3.06 | 18.30 | 33.06 | 100 | 3.06 | 18.30 | 33.06 | 26.34 | 170 | 0.189 |
| 125 | 〃 | 125 | 2.93 | 18.35 | 33.15 | 150 | 3.08 | 18.50 | 33.42 | 26.63 | 142 | 0.268 |
| 150 | 〃 | 150 | (3.08) | (18.50) | (33.42) | 200 | 3.26 | 18.70 | 33.78 | 26.91 | 116 | 0.333 |
| 200 | 〃 | 200 | 3.26 | 18.70 | 33.78 | 300 | 3.48 | 18.80 | 33.96 | 27.03 | 100 | 0.443 |
| 310 | 12 | 300 | 3.48 | 18.80 | 33.96 | 400 | 3.48 | 18.88 | 34.11 | 27.14 | 94 | 0.542 |
| 420 | 〃 | 406 | 3.48 | 18.88 | 34.11 | 500 | 3.38 | 18.94 | 34.22 | 27.23 | 85 | 0.634 |
| 520 | 〃 | 503 | 3.36 | 18.94 | 34.22 | 600 | 3.30 | 18.97 | 34.27 | 27.29 | 80 | 0.720 |
| 630 | 〃 | (610) | 3.29 | 18.97 | 34.27 | 800 | 2.99 | 19.02 | 34.36 | 27.40 | 69 | 0.878 |
| 830 | 〃 | 804 | 2.97 | 19.02 | 34.36 | 1000 | 2.69 | 19.06 | 34.43 | 27.49 | 61 | 1.019 |
| 1040 | 〃 | 1009 | 2.67 | 19.06 | 34.43 | 1200 | 2.50 | 19.08 | 34.47 | 27.53 | 57 | 1.150 |
| 1250 | 〃 | (1212) | 2.50 | 19.09 | 34.49 | 1500 | 2.15 | 19.12 | 34.54 | 27.61 | 49 | 1.330 |
| 1560 | 〃 | (1512) | 2.13 | 19.12 | 34.54 | | | | | | | |

Table 12. (Continued)

**Station Os 22**

Date June 25 Time 0830～0910 (S.M.T.) Latitude 48°19′N Longitude 176°45′W
Wind ESE 4 Weather o Air Temp. 6.3°C Sea ESE 4 Swell SE 2 Col. × Tr. 12m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.7 | (18.27) | (33.01) | 0 | 6.7 | 18.27 | 33.01 | 25.89 | 212 | 0 |
| 10 | 15 | 10 | 6.57 | 18.27 | 33.01 | 10 | 6.57 | 18.27 | 33.01 | 25.91 | 211 | 0.021 |
| 20 | 〃 | 19 | 5.90 | 18.29 | 33.04 | 20 | 5.80 | 18.29 | 33.04 | 26.03 | 199 | 0.042 |
| 30 | 〃 | 29 | (5.56) | 18.30 | 33.06 | 30 | 5.50 | 18.30 | 33.06 | 26.09 | 193 | 0.062 |
| 50 | 〃 | 49 | 4.82 | 18.32 | 33.10 | 50 | 4.65 | 18.32 | 33.10 | 26.21 | 182 | 0.100 |
| 80 | 15 | 78 | 3.48 | 18.32 | 33.10 | 75 | 3.50 | 18.32 | 33.10 | 26.33 | 171 | 0.144 |
| 105 | 〃 | 102 | 2.80 | (18.33) | (33.12) | 100 | 2.84 | 18.33 | 33.12 | 26.42 | 162 | 0.186 |
| 130 | 〃 | 126 | 2.73 | 18.40 | 33.24 | 150 | 3.10 | 18.65 | 33.69 | 26.84 | 122 | 0.258 |
| 155 | 〃 | 150 | 3.10 | 18.65 | 33.69 | 200 | 3.30 | 18.88 | 34.11 | 27.16 | 92 | 0.312 |
| 210 | 〃 | 203 | 3.33 | 18.88 | 34.11 | | | | | | | |

**Station Os 23**

Date June 25 Time 1830～1905 (S.M.T.) Latitude 48°25′N Longitude 175°11′W
Wind E 4 Weather r Air Temp. 5.9°C Sea E 4 Swell SE 3 Col. × Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.3 | 18.26 | 32.99 | 0 | 6.3 | 18.26 | 32.99 | 25.93 | 209 | 0 |
| 10 | 9 | 10 | 6.32 | 18.26 | 32.99 | 10 | 6.32 | 18.26 | 32.99 | 25.93 | 209 | 0.021 |
| 20 | 〃 | 20 | 6.28 | 18.29 | 33.04 | 20 | 6.28 | 18.29 | 33.04 | 25.98 | 204 | 0.042 |
| 35 | 〃 | 35 | 5.21 | 18.30 | 33.06 | 30 | 5.70 | 18.30 | 33.06 | 26.07 | 195 | 0.062 |
| 55 | 〃 | 55 | 4.88 | 18.35 | 33.15 | 50 | 4.88 | 18.33 | 33.10 | 26.19 | 184 | 0.100 |
| 80 | 23 | 74 | (3.86) | (18.39) | (33.22) | 75 | 3.85 | 18.39 | 33.22 | 26.41 | 163 | 0.144 |
| 105 | 〃 | 94 | 3.27 | (18.43) | (33'30) | 100 | 3.18 | 18.44 | 33.31 | 26.55 | 150 | 0.183 |
| 130 | 〃 | 120 | 3.15 | 18.46 | 33.35 | 150 | 3.04 | 18.50 | 33.42 | 26.63 | 142 | 0.257 |
| 155 | 〃 | 143 | 3.05 | 18.48 | 33.39 | 200 | 3.20 | 18.80 | 33.96 | 27.05 | 51 | 0.319 |
| 210 | 〃 | 193 | 3.17 | 18.79 | 33.95 | | | | | | | |

Table 12. (Continued)

**Station Os 24**

Date June 26 Time 1315～1348 (S.M.T.) Latitude 48°22′N Longitude 172°00′W
Wind N 4 Weather o Air Temp. 7.5°C Sea N 4 Swell NNW 1 Col. × Tr. 16m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.7 | 18.29 | 33.04 | 0 | 6.7 | 18.29 | 33.04 | 25.94 | 208 | 0 |
| 10 | 18 | 10 | 6.47 | (18.29) | (33.04) | 10 | 6.47 | 18.29 | 33.04 | 25.98 | 204 | 0.021 |
| 20 | 〃 | 19 | 6.24 | (18.29) | (33.04) | 20 | 6.18 | 18.29 | 33.04 | 26.01 | 201 | 0.041 |
| 35 | 〃 | 34 | (5.70) | 18.30 | 33.06 | 30 | 5.86 | 18.30 | 33.06 | 26.06 | 196 | 0.061 |
| 55 | 〃 | 53 | 5.07 | (18.30) | (33.06) | 50 | 5.20 | 18.30 | 33.06 | 26.14 | 196 | 0.100 |
| 80 | 21 | 76 | 4.10 | 18.30 | 33.06 | 75 | 4.50 | 18.30 | 33.06 | 26.24 | 196 | 0.149 |
| 105 | 〃 | 99 | 3.36 | (18.31) | (33.08) | 100 | 3.35 | 18.31 | 33.08 | 26.34 | 170 | 0.195 |
| 130 | 〃 | 122 | 3.13 | 18.37 | 33.19 | 150 | 3.10 | 18.75 | 33.87 | 27.00 | 107 | 0.265 |
| 155 | 〃 | 145 | 3.08 | 18.73 | 33.84 | 200 | 3.32 | 18.83 | 34.02 | 27.11 | 97 | 0.317 |
| 210 | 〃 | 196 | 3.31 | 18.83 | 34.02 | 300 | 3.48 | 18.91 | 34.16 | 27.19 | 89 | 0.413 |
| 370 | 39 | 298 | 3.49 | 18.91 | 34.16 | 400 | 3.47 | 18.92 | 34.18 | 27.21 | 87 | 0.504 |
| 490 | 〃 | 394 | 3.48 | 18.92 | 34.18 | 500 | 3.35 | 18.94 | 34.22 | 27.25 | 83 | 0.592 |
| 620 | 〃 | 498 | 3.36 | 18.94 | 34.22 | 600 | 3.21 | 18.96 | 34.25 | 27.29 | 80 | 0.677 |
| 740 | 〃 | 594 | 3.20 | 18.97 | 34.27 | 800 | 3.01 | 19.00 | 34.33 | 27.37 | 72 | 0.838 |
| 990 | 45 | (805) | (3.00) | (19.00) | (34.33) | 1000 | 2.79 | 19.04 | 34.40 | 27.44 | 69 | 0.990 |
| 1240 | 〃 | (1008) | 2.79 | (19.04) | (34.40) | 1200 | 2.57 | 19.07 | 34.45 | 27.51 | 64 | 1.136 |
| 1480 | 〃 | (1205) | 2.53 | 19.07 | 34.45 | 1500 | 2.21 | 19.09 | 34.49 | 27.56 | 54 | 1.336 |
| 1850 | 〃 | (1510) | 2.20 | 19.09 | 34.49 | | | | | | | |

**Station Os 25**

Date June 26 Time 2030～2115 (S.M.T.) Latitude 48°59′N Longitude 171°59′W
Wind NW 4 Weather o Air Temp. 7.0°C Sea NW 4 Swell SW 2 Col. × Tr. ×

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.6 | (18.17) | (32.83) | 0 | 6.6 | 18.17 | 32.83 | 25.78 | 223 | 0 |
| 10 | 14 | 10 | 6.45 | (18.17) | (32.83) | 10 | 6.45 | 18.17 | 32.83 | 25.80 | 221 | 0.022 |
| 20 | 〃 | 19 | (6.30) | 18.17 | 32.83 | 20 | 6.27 | 18.17 | 32.83 | 25.82 | 219 | 0.044 |
| 30 | 〃 | 29 | (6.12) | (18.18) | (32.85) | 30 | 6.06 | 18.18 | 32.85 | 25.87 | 214 | 0.066 |
| 55 | 〃 | 54 | 5.08 | 18.19 | 32.86 | 50 | 5.25 | 18.19 | 32.86 | 25.98 | 204 | 0.108 |
| 80 | 23 | 74 | 4.00 | 18.22 | 32.92 | 75 | 3.70 | 18.22 | 32.92 | 26.19 | 184 | 0.157 |
| 105 | 〃 | 94 | 3.19 | 18.42 | 33.28 | 100 | 3.21 | 18.58 | 33.57 | 26.74 | 132 | 0.197 |
| 130 | 〃 | 120 | 3.56 | (18.74) | (33.86) | 150 | 3.67 | 18.80 | 33.96 | 27.02 | 105 | 0.257 |
| 155 | 〃 | 143 | 3.66 | 18.81 | 33.98 | 200 | 3.62 | 18.88 | 34.11 | 27.13 | 95 | 0.308 |
| 210 | 〃 | 193 | 3.62 | 18.87 | 34.09 | 300 | 3.53 | 18.94 | 34.22 | 27.23 | 85 | 0.400 |
| 370 | 43 | 288 | 3.62 | 18.94 | 34.22 | 400 | 3.41 | 18.97 | 34.29 | 27.29 | 80 | 0.485 |
| 490 | 〃 | 380 | 3.46 | (18.98) | (34.29) | 500 | 3.29 | 19.00 | 34.33 | 27.34 | 75 | 0.566 |
| 620 | 〃 | 485 | 3.38 | 19.00 | 34.33 | 600 | 3.17 | 19.01 | 34.34 | 27.37 | 72 | 0.644 |
| 740 | 〃 | 585 | 3.21 | 19.03 | 34.38 | 800 | 2.91 | 19.06 | 34.43 | 27.46 | 63 | 0.788 |
| 990 | 〃 | 800 | 2.91 | 19.06 | 34.43 | 1000 | 2.60 | 19.10 | 34.51 | 27.54 | 56 | 0.918 |
| 1240 | 〃 | 1032 | 2.54 | 19.11 | 34.52 | 1200 | 2.36 | 19.14 | 34.60 | 27.62 | 48 | 1.034 |
| 1480 | 〃 | 1260 | 2.32 | (19.14) | (34.58) | 1500 | 2.08 | 19.19 | 34.67 | 27.72 | 39 | 1.184 |
| 1850 | 〃 | (1590) | 2.02 | 19.21 | 34.70 | | | | | | | |

Table 12. (Continued)

**Station Os 26**

Date June 27 Time 0540～0610 (S.M.T.) Latitude 50°01′N Longitude 171°59′W
Wind W 4 Weather o Air Temp. 7.0°C Sea W 4 Swell WNW 1 Col. × Tr. 12m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.6 | 18.20 | 32.88 | 0 | 6.6 | 18.20 | 32.88 | 25.83 | 218 | 0 |
| 10 | 10 | 10 | 6.51 | 18.22 | 32.92 | 10 | 6.51 | 18.22 | 32.92 | 25.87 | 214 | 0.022 |
| 20 | 〃 | 20 | 6.38 | 18.24 | 32.95 | 20 | 6.38 | 18.24 | 32.95 | 25.91 | 211 | 0.043 |
| 35 | 〃 | 35 | (6.10) | 18.24 | 32.95 | 30 | 6.25 | 18.24 | 32.95 | 25.93 | 209 | 0.064 |
| 55 | 〃 | 54 | 5.21 | 18.23 | 32.94 | 50 | 5.55 | 18.24 | 32.95 | 26.01 | 201 | 0.105 |
| 80 | 14 | 78 | 3.86 | (18.30) | (33.06) | 75 | 4.00 | 18.28 | 33.03 | 26.24 | 179 | 0.153 |
| 105 | 〃 | 102 | 3.27 | 18.41 | 33.26 | 100 | 3.29 | 18.39 | 33.22 | 26.46 | 158 | 0.195 |
| 130 | 〃 | 126 | 3.42 | 18.66 | 33.71 | 150 | 3.56 | 18.77 | 33.91 | 26.98 | 107 | 0.262 |
| 155 | 〃 | 151 | 3.56 | 18.78 | 33.93 | 200 | 3.60 | 18.87 | 34.09 | 27.12 | 96 | 0.314 |
| 210 | 〃 | 204 | 3.61 | 18.88 | 34.11 | 300 | 3.58 | 18.96 | 34.25 | 27.26 | 82 | 0.406 |
| 370 | 15 | 361 | 3.51 | (19.00) | (34.33) | 400 | 3.47 | 19.01 | 34.34 | 27.33 | 76 | 0.488 |
| 490 | 〃 | 478 | 3.37 | 19.03 | 34.38 | 500 | 3.34 | 19.03 | 34.38 | 27.38 | 71 | 0.565 |
| 620 | 〃 | 602 | 3.26 | 19.04 | 34.40 | 600 | 3.22 | 19.04 | 34.40 | 27.41 | 68 | 0.638 |
| 740 | 〃 | 721 | 3.08 | 19.05 | 34.42 | 800 | 2.99 | 19.05 | 34.42 | 27.44 | 65 | 0.780 |
| 990 | 〃 | (964) | 2.69 | 19.06 | 34.43 | 1000 | 2.78 | 19.06 | 34.43 | 27.47 | 62 | 0.918 |
| 1240 | 〃 | 1207 | 2.50 | 19.06 | 34.43 | 1200 | 2.54 | 19.06 | 34.43 | 27.50 | 60 | 1.053 |
| 1480 | 〃 | 1439 | 2.36 | 19.06 | 34.43 | 1500 | 2.26 | 19.06 | 34.43 | 27.51 | 59 | 1.253 |
| 1850 | 〃 | (1800) | 1.97 | 19.06 | 34.43 | | | | | | | |

**Station Os 27**

Date June 27 Time 1600～1830 (S.M.T.) Latitude 51°16′N Longitude 171°56′W
Wind W 3 Weather c Air Temp. 7.3°C Sea W 3 Swell WSW 1 Col. × Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.8 | | | 0 | 7.8 | | | | | |
| 10 | 5 | 10 | 7.54 | | | 10 | 7.54 | | | | | |
| 20 | 〃 | 20 | 7.23 | | | 20 | 7.23 | | | | | |
| 30 | 〃 | 30 | 7.12 | | | 30 | 7.12 | | | | | |
| 50 | 〃 | 50 | 6.28 | | | 50 | 6.28 | | | | | |
| 80 | 13 | 79 | 5.18 | | | 75 | 5.38 | | | | | |
| 105 | 〃 | 103 | 4.37 | | | 100 | 4.44 | | | | | |
| 130 | 〃 | 127 | 4.60 | | | 150 | 5.00 | | | | | |
| 155 | 〃 | 152 | 5.04 | | | 200 | 4.96 | | | | | |
| 210 | 〃 | 205 | 4.77 | | | 300 | 4.62 | | | | | |
| 330 | 35 | 259 | 4.72 | | | 400 | 4.34 | | | | | |
| 450 | 〃 | 353 | (4.50) | | | 500 | 4.06 | | | | | |
| 560 | 〃 | 440 | (4.23) | | | 600 | 3.77 | | | | | |
| 670 | 〃 | (524) | 3.99 | | | 800 | 3.28 | | | | | |
| 890 | 〃 | (694) | 3.50 | | | 1000 | 2.92 | | | | | |
| 1110 | 〃 | 865 | 3.17 | | | 1200 | 2.57 | | | | | |
| 1340 | 〃 | (1064) | (2.80) | | | | | | | | | |
| 1670 | 〃 | (1300) | 2.38 | | | | | | | | | |

Table 12. (Continued)

**Station Os 28**

Date June 28 Time 0830～0915 (S.M.T.) Latitude 53°31′N Longitude 171°58′W

Wind WSW 3 Weather o Air Temp. 7.0°C Sea WSW 3 Swell SW 1 Col. 4 Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.8 | 18.34 | 33.13 | 0 | 6.8 | 18.34 | 33.13 | 26.00 | 202 | 0 |
| 10 | 5 | 10 | 6.80 | (18.34) | (33.13) | 10 | 6.80 | 18.34 | 33.13 | 26.00 | 202 | 0.020 |
| 20 | 〃 | 20 | 5.61 | 18.35 | 33.15 | 20 | 5.61 | 18.35 | 33.15 | 26.16 | 187 | 0.040 |
| 35 | 〃 | 35 | 4.66 | (18.35) | (33.15) | 30 | 4.80 | 18.35 | 33.15 | 26.25 | 178 | 0.058 |
| 55 | 〃 | 55 | 3.56 | 18.36 | 33.17 | 50 | 3.70 | 18.36 | 33.17 | 26.38 | 166 | 0.092 |
| 80 | 10 | 79 | 3.29 | (18.38) | (33.21) | 75 | 3.31 | 18.38 | 33.21 | 26.44 | 160 | 0.133 |
| 105 | 〃 | 103 | 3.24 | (18.40) | (33.24) | 100 | 3.24 | 18.40 | 33.24 | 26.49 | 155 | 0.173 |
| 130 | 〃 | 128 | (3.21) | (18.44) | (33.31) | 150 | 3.23 | 18.48 | 33.39 | 26.60 | 145 | 0.249 |
| 155 | 〃 | 153 | 3.23 | 18.48 | 33.39 | 200 | 3.73 | 18.58 | 33.57 | 26.70 | 135 | 0.320 |
| 210 | 〃 | 207 | 3.78 | 18.60 | 33.60 | 300 | 4.09 | 18.80 | 33.96 | 26.97 | 110 | 0.445 |
| 330 | 12 | 301 | 4.09 | 18.80 | 33.96 | 400 | 3.87 | 18.88 | 34.11 | 27.11 | 97 | 0.551 |
| 450 | 〃 | (411) | (3.81) | 18.89 | 34.13 | 500 | 3.64 | 18.94 | 34.22 | 27.22 | 86 | 0.646 |
| 560 | 〃 | (512) | 3.58 | (18.94) | (34.22) | 600 | 3.50 | 18.97 | 34.27 | 27.28 | 80 | 0.733 |
| 670 | 〃 | (615) | 3.51 | (18.98) | (34.29) | 800 | 3.27 | 19.02 | 34.36 | 27.37 | 72 | 0.895 |
| 890 | 〃 | 820 | 3.23 | 19.02 | 34.36 | 1000 | 3.00 | 19.06 | 34.43 | 27.45 | 64 | 1.044 |
| 1110 | 〃 | 1018 | 2.95 | 19.07 | 34.45 | 1200 | 2.77 | 19.10 | 34.51 | 27.54 | 56 | 1.178 |
| 1340 | 〃 | (1232) | (2.74) | 19.11 | 34.52 | 1500 | 2.41 | 19.15 | 34.60 | 27.64 | 46 | 1.354 |
| 1670 | 〃 | (1537) | 2.39 | 19.16 | 34.61 | | | | | | | |

**Station Os 29**

Date June 29 Time 1510～1550 (S.M.T.) Latitude 55°30′N Longitude 171°52′W

Wind W 3 Weather o Air Temp. 7.5°C Sea W 3 Swell W 1 Col. 4 Tr. 16m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.0 | 18.21 | 32.90 | 0 | 7.0 | 18.21 | 32.90 | 25.76 | 225 | 0 |
| 10 | 5 | 10 | 6.84 | 18.20 | 32.88 | 10 | 6.84 | 18.20 | 32.88 | 25.77 | 224 | 0.023 |
| 20 | 〃 | 20 | 6.65 | 18.20 | 32.88 | 20 | 6.65 | 18.20 | 32.88 | 25.79 | 222 | 0.045 |
| 30 | 〃 | 30 | 5.76 | 18.28 | 33.03 | 30 | 5.76 | 18.28 | 33.03 | 26.03 | 199 | 0.066 |
| 50 | 〃 | 50 | 3.23 | 18.34 | 33.13 | 50 | 3.23 | 18.34 | 33.13 | 26.39 | 165 | 0.102 |
| 75 | 9 | 75 | 3.16 | 18.40 | 33.24 | 75 | 3.16 | 18.40 | 33.24 | 26.50 | 154 | 0.142 |
| 100 | 〃 | 99 | (3.21) | (18.44) | (33.31) | 100 | 3.23 | 18.44 | 33.31 | 26.54 | 151 | 0.180 |
| 125 | 〃 | 124 | 3.47 | (18.47) | (33.37) | 150 | 3.82 | 18.53 | 33.48 | 26.62 | 143 | 0.254 |
| 150 | 〃 | 149 | 3.82 | 18.53 | 33.48 | 200 | 3.90 | 18.65 | 33.69 | 26.76 | 130 | 0.323 |
| 200 | 〃 | 198 | 3.90 | 18.65 | 33.69 | 300 | 3.83 | 18.75 | 33.87 | 26.92 | 115 | 0.448 |
| 330 | 21 | (303) | (3.84) | (18.75) | (33.87) | 400 | 3.72 | 18.82 | 34.00 | 27.03 | 104 | 0.560 |
| 450 | 〃 | (417) | 3.68 | 18.82 | 34.00 | 500 | 3.53 | 18.88 | 34.11 | 27.14 | 94 | 0.662 |
| 560 | 〃 | 518 | 3.46 | 18.89 | 34.13 | 600 | 3.34 | 18.92 | 34.18 | 27.21 | 87 | 0.756 |
| 670 | 〃 | 620 | 3.31 | 18.94 | 34.22 | 800 | 3.08 | 18.98 | 34.29 | 27.32 | 77 | 0.929 |
| 890 | 〃 | (827) | 3.00 | 18.99 | 34.31 | 1000 | 2.80 | 19.05 | 34.42 | 27.47 | 62 | 1.079 |
| 1110 | 〃 | 1030 | 2.75 | 19.07 | 34.45 | 1200 | 2.51 | 19.10 | 34.51 | 27.56 | 54 | 1.208 |
| 1340 | 〃 | (1244) | (2.46) | (19.11) | (34.52) | 1500 | 2.18 | 19.18 | 34.65 | 27.69 | 42 | 1.375 |
| 1670 | 〃 | (1551) | 2.12 | 19.20 | 34.69 | | | | | | | |

Table 12. (Continued)

**Station Os 30**

Date June 30 Time 1500～1535 (S.M.T.) Latitude 56°00′N Longitude 171°44′W

Wind S 3 Weather r Air Temp. 7.5°C Sea SSW 3 Swell WNW 1 Col. × Tr. 6m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.4 | | | 0 | 7.4 | | | | | |
| 10 | 4 | 10 | 6.98 | | | 10 | 6.98 | | | | | |
| 20 | 〃 | 20 | 6.23 | | | 20 | 6.23 | | | | | |
| 30 | 〃 | 30 | 5.31 | | | 30 | 5.31 | | | | | |
| 50 | 〃 | 50 | 4.30 | | | 50 | 4.30 | | | | | |
| 75 | 7 | 75 | 3.74 | | | 75 | 3.74 | | | | | |
| 100 | 〃 | 99 | 3.29 | | | 100 | 3.28 | | | | | |
| 125 | 〃 | 124 | (3.14) | | | 150 | 3.31 | | | | | |
| 150 | 〃 | 149 | 3.31 | | | 200 | 3.72 | | | | | |
| 200 | 〃 | 199 | 3.72 | | | 300 | 3.88 | | | | | |
| 314 | 5 | 309 | 3.88 | | | 400 | 3.76 | | | | | |
| 420 | 〃 | 413 | 3.75 | | | 500 | 3.61 | | | | | |
| 520 | 〃 | 512 | 3.58 | | | 600 | 3.43 | | | | | |
| 630 | 〃 | 620 | 3.38 | | | 800 | 3.10 | | | | | |
| 830 | 〃 | (817) | 3.07 | | | 1000 | 2.85 | | | | | |
| 1040 | 〃 | 1025 | 2.81 | | | 1200 | 2.60 | | | | | |
| 1250 | 〃 | 1230 | 2.57 | | | 1500 | 2.18 | | | | | |
| 1560 | 〃 | (1535) | 2.14 | | | | | | | | | |

**Station Os 31**

Date July 1 Time 1630～1700 (S.M.T.) Latitude 57°40′N Longitude 171°50′W

Wind E 3 Weather o Air Temp. 6.4°C Sea E 3 Swell WSW 1 Col. × Tr. 7m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.7 | 17.87 | 32.29 | 0 | 7.7 | 17.87 | 32.29 | 25.21 | 277 | 0 |
| 10 | 5 | 10 | 7.31 | 17.87 | 32.29 | 10 | 7.31 | 17.87 | 32.29 | 25.26 | 272 | 0.028 |
| 20 | 〃 | 20 | 4.12 | (17.88) | (32.30) | 20 | 4.12 | 17.88 | 32.30 | 25.65 | 235 | 0.053 |
| 30 | 〃 | 30 | 3.25 | 17.95 | 32.43 | 30 | 3.25 | 17.95 | 32.43 | 25.84 | 217 | 0.076 |
| 50 | 〃 | 50 | 1.94 | 18.05 | 32.61 | 50 | 1.94 | 18.05 | 32.61 | 26.08 | 194 | 0.117 |
| 75 | 〃 | 75 | 1.76 | 18.10 | 32.70 | 75 | 1.76 | 18.10 | 32.70 | 26.17 | 186 | 0.165 |
| 102 | 〃 | 102 | 1.65 | 18.15 | 32.79 | 100 | 1.66 | 18.15 | 32.79 | 26.25 | 178 | 0.211 |

Table 12. (Continued)

**Station Os 32**

Date July 2 Time 1650～1730 (S.M.T.) Latitude 57°41′N Longitude 174°25′W
Wind NNW 5 Weather o Air Temp. 7.5°C Sea NNW 5 Swell N 3 Col. × Tr. 14m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 7.6 | | | 0 | 7.6 | | | | | |
| 10 | 20 | 9 | 7.30 | | | 10 | 7.00 | | | | | |
| 20 | 〃 | 18 | 6.40 | | | 20 | 6.10 | | | | | |
| 30 | 〃 | 28 | 5.45 | | | 30 | 5.18 | | | | | |
| 50 | 〃 | 47 | 4.14 | | | 50 | 4.08 | | | | | |
| 80 | 30 | 69 | (3.76) | | | 75 | 3.70 | | | | | |
| 105 | 〃 | 92 | 3.59 | | | 100 | 3.52 | | | | | |
| 130 | 〃 | 114 | 3.45 | | | 150 | 3.41 | | | | | |
| 155 | 〃 | 135 | 3.39 | | | 200 | 3.60 | | | | | |
| 210 | 〃 | 182 | (3.50) | | | 300 | 3.88 | | | | | |
| 330 | 50 | (192) | 3.54 | | | 400 | 3.83 | | | | | |
| 450 | 〃 | 260 | (3.81) | | | 500 | 3.70 | | | | | |
| 560 | 〃 | 330 | 3.91 | | | 600 | 3.58 | | | | | |
| 670 | 〃 | 390 | 3.85 | | | 800 | 3.29 | | | | | |
| 890 | 〃 | (515) | 3.73 | | | | | | | | | |
| 1110 | 〃 | (640) | 3.44 | | | | | | | | | |
| 1340 | 〃 | (773) | 3.33 | | | | | | | | | |
| 1670 | 〃 | (968) | 3.03 | | | | | | | | | |

**Station Os 33**

Date July 5 Time 1800～1850 (S.M.T.) Latitude 58°59′N Longitude 173°32′W
Wind WNW 4 Weather o Air Temp. 6.5°C Sea WNW 4 Swell NW 1 Col. 4 Tr. 14m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 7.5 | 17.73 | 32.03 | 0 | 7.5 | 17.73 | 32.03 | 25.03 | 294 | 0 |
| 10 | 22 | 9 | 7.41 | 17.73 | 32.03 | 10 | 7.40 | 17.73 | 32.03 | 25.05 | 292 | 0.029 |
| 15 | 23 | 14 | 7.27 | 17.80 | 32.16 | 20 | 4.50 | 17.90 | 32.34 | 25.64 | 236 | 0.055 |
| 20 | 22 | 18 | 4.51 | 17.84 | 32.23 | 30 | 3.26 | 18.05 | 32.61 | 25.98 | 204 | 0.077 |
| 25 | 23 | 23 | 3.99 | 18.00 | 32.52 | 50 | 2.74 | 18.14 | 32.77 | 26.15 | 188 | 0.116 |
| 30 | 22 | 28 | 3.35 | 18.04 | 32.59 | 75 | 2.36 | 18.19 | 32.86 | 26.26 | 177 | 0.162 |
| 50 | 〃 | 46 | 2.91 | 18.11 | 32.72 | 100 | 2.14 | 18.20 | 32.88 | 26.29 | 174 | 0.206 |
| 75 | 〃 | 70 | (2.40) | 18.19 | 32.86 | | | | | | | |
| 100 | 〃 | 93 | 2.18 | 18.19 | 32.86 | | | | | | | |
| 118 | 〃 | 109 | 2.09 | (18.20) | (32.88) | | | | | | | |

Table 12. (Continued)

**Station Os 34**

Date July 6 Time 1130～1152 (S.M.T.) Latitude 61°01′N Longitude 173°24′W
Wind WSW 3 Weather c Air Temp. 9.4°C Sea WSW 3 Swell W 2 Col. 5 Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.7 | 17.58 | 31.76 | 0 | 7.7 | 17.58 | 31.76 | 24.80 | 316 | 0 |
| 10 | 18 | 10 | 7.33 | 17.58 | 31.76 | 10 | 7.33 | 17.58 | 31.76 | 24.85 | 311 | 0.031 |
| 20 | 〃 | 19 | 1.24 | 17.58 | 31.76 | 20 | 0.50 | 17.58 | 31.76 | 25.49 | 250 | 0.059 |
| 30 | 〃 | 29 | -1.42 | 17.68 | 31.94 | 30 | -1.42 | 17.68 | 31.94 | 25.71 | 230 | 0.083 |
| 50 | 〃 | 48 | -1.44 | 17.70 | 31.98 | 50 | -1.45 | 17.70 | 31.98 | 25.74 | 227 | 0.109 |
| 73 | 〃 | 69 | -1.49 | 17.71 | 32.00 | | | | | | | |

**Station Os 35**

Date July 6 Time 1920～1945 (S.M.T.) Latitude 61°00′N Longitude 171°39′W
Wind W 3 Weather o Air Temp. 7.6°C Sea W 3 Swell W 1 Col. 4 Tr. 16m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.5 | 17.52 | 31.65 | 0 | 7.5 | 17.52 | 31.65 | 24.74 | 322 | 0 |
| 10 | 5 | 10 | 7.14 | 17.62 | 31.83 | 10 | 7.14 | 17.62 | 31.83 | 24.93 | 304 | 0.031 |
| 20 | 〃 | 20 | 2.95 | (17.64) | (31.87) | 20 | 2.95 | 17.64 | 31.87 | 25.42 | 257 | 0.059 |
| 30 | 〃 | 30 | -1.21 | 17.66 | 31.91 | 30 | -1.21 | 17.66 | 31.91 | 25.68 | 232 | 0.083 |
| 50 | 〃 | 50 | -1.27 | 17.67 | 31.92 | 50 | -1.27 | 17.67 | 31.92 | 25.70 | 230 | 0.129 |

Table 12. (Continued)

**Station Os 36**

Date July 7 Time 1300~1330 (S.M.T.) Latitude 59°58′N Longitude 170°00′W

Wind WSW 4 Weather o Air Temp. 6.7°C Sea WSW 4 Swell WSW 2 Col. 5 Tr. 17m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\triangle$st (cl/ton) | $\triangle$D (dyn.m) |
| 0 | | 0 | 6.6 | | | 0 | 6.6 | | | | | |
| 10 | 7 | 10 | 6.50 | | | 10 | 6.50 | | | | | |
| 15 | 10 | 15 | 6.48 | | | 20 | 1.12 | | | | | |
| 20 | 7 | 20 | 1.12 | | | 30 | −0.97 | | | | | |
| 30 | 〃 | 30 | −0.97 | | | 50 | −1.02 | | | | | |
| 50 | 〃 | 50 | −1.02 | | | | | | | | | |

**Station Os 37**

Date July 7 Time 1830~1846 (S.M.T.) Latitude 59°25′N Longitude 169°12′W

Wind SSW 2 Weather f Air Temp. 5.1°C Sea SSW 2 Swell WNW 1 Col. 5 Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\triangle$st (cl/ton) | $\triangle$D (dyn.m) |
| 0 | | 0 | 4.8 | 17.47 | 31.56 | 0 | 4.8 | 17.47 | 31.56 | 25.00 | 297 | 0 |
| 10 | 7 | 10 | 4.01 | (17.47) | (31.56) | 10 | 4.01 | 17.47 | 31.56 | 25.08 | 289 | 0.029 |
| 15 | 〃 | 15 | 1.81 | (17.47) | (31.56) | 20 | 0.75 | 17.47 | 31.56 | 25.32 | 267 | 0.057 |
| 20 | 〃 | 20 | 0.75 | (17.47) | (31.56) | 30 | 0.71 | 17.47 | 31.56 | 25.33 | 266 | 0.084 |
| 30 | 〃 | 30 | 0.71 | 17.47 | 31.56 | | | | | | | |
| 45 | 〃 | 45 | 0.59 | 17.48 | 31.58 | | | | | | | |

Table 12. (Continued)

**Station Os 38**

Date July 8 Time 0835～0855 (S.M.T.) Latitude 58°43′N Longitude 167°54′W
Wind S 2 Weather f Air Temp. 4.8°C Sea S 2 Swell WSW 1 Col. 6 Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.7 | 17.51 | 31.64 | 0 | 3.7 | 17.51 | 31.64 | 25.16 | 282 | 0 |
| 10 | 6 | 10 | 3.40 | 17.50 | 31.62 | 10 | 3.40 | 17.50 | 31.62 | 25.18 | 280 | 0.028 |
| 15 | 〃 | 15 | 3.31 | 17.49 | 31.60 | 20 | 2.46 | 17.49 | 31.60 | 25.24 | 274 | 0.056 |
| 20 | 〃 | 20 | 2.46 | 17.49 | 31.60 | 30 | 2.35 | 17.49 | 31.60 | 25.25 | 273 | 0.083 |
| 30 | 〃 | 30 | 2.35 | 17.49 | 31.60 | | | | | | | |
| 40 | 〃 | 40 | 2.26 | 17.47 | 31.56 | | | | | | | |

**Station Os 39**

Date July 11 Time 1305～1335 (S.M.T.) Latitude 58°25′N Longitude 166°23′W
Wind SE 1 Weather c Air Temp. 8.3°C Sea SE 1 Swell SW 1 Col. 5 Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.5 | 17.61 | 31.82 | 0 | 7.5 | 17.61 | 31.82 | 24.87 | 309 | 0 |
| 5 | 3 | 5 | 3.30 | 17.59 | 31.78 | 10 | 3.06 | 17.63 | 31.85 | 25.40 | 259 | 0.028 |
| 10 | 〃 | 10 | 3.06 | 17.63 | 31.85 | 20 | 3.06 | 17.62 | 31.83 | 25.38 | 261 | 0.054 |
| 15 | 〃 | 15 | 3.05 | (17.62) | (31.83) | 30 | 2.95 | 17.62 | 31.83 | 25.40 | 259 | 0.080 |
| 20 | 〃 | 20 | 3.06 | 17.62 | 31.83 | | | | | | | |
| 30 | 〃 | 30 | 2.95 | (17.62) | (31.83) | | | | | | | |
| 45 | 〃 | 45 | 5.10 | 17.59 | 31.78 | | | | | | | |

Table 12. (Continued)

**Station Os 40**

Date July 11 Time 2100～2115 (S.M.T.) Latitude 58°10′N Longitude 164°42′W
Wind × Weather f Air Temp. 6.8°C Sea × Swell SW 1 Col. × Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.5 | 17.75 | 32.07 | 0 | 7.5 | 17.75 | 32.07 | 25.07 | 290 | 0 |
| 5 | 0 | 5 | 4.05 | 17.77 | 32.11 | 10 | 3.87 | 17.76 | 32.09 | 25.50 | 249 | 0.027 |
| 10 | 〃 | 10 | 3.87 | 17.76 | 32.09 | 20 | 3.82 | 17.75 | 32.07 | 25.50 | 249 | 0.052 |
| 20 | 〃 | 20 | 3.82 | 17.75 | 32.07 | 30 | 3.87 | 17.75 | 32.07 | 25.49 | 250 | 0.077 |
| 30 | 〃 | 30 | 3.87 | (17.75) | (32.07) | | | | | | | |
| 45 | 〃 | 45 | 3.81 | 17.74 | 32.05 | | | | | | | |

**Station Os 41**

Date July 12 Time 2000～2015 (S.M.T.) Latitude 57°48′N Longitude 162°04′W
Wind WNW 1 Weather b Air Temp. 8.8°C Sea WNW 1 Swell WSW 1 Col. 5 Tr. 11m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.8 | 17.72 | 32.02 | 0 | 6.8 | 17.72 | 32.02 | 25.12 | 287 | 0 |
| 5 | 0 | 5 | 5.67 | 17.72 | 32.02 | 10 | 5.39 | 17.66 | 31.91 | 25.20 | 278 | 0.028 |
| 10 | 〃 | 10 | 5.39 | 17.66 | 31.91 | 20 | 5.19 | 17.66 | 31.91 | 25.23 | 275 | 0.056 |
| 20 | 〃 | 20 | 5.19 | 17.66 | 31.91 | 30 | 5.20 | 17.68 | 31.94 | 25.26 | 272 | 0.083 |
| 30 | 〃 | 30 | 5.20 | 17.68 | 31.94 | | | | | | | |
| 35 | 〃 | 35 | 5.13 | 17.66 | 31.91 | | | | | | | |

Table 12. (Continued)

**Station Os 42**

Date July 13 Time 1305～1358 (S.M.T.) Latitude 56°50′N Longitude 163°04′W
Wind NNE 2 Weather b Air Temp. 14.9°C Sea NNE 2 Swell × Col. 4 Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 10.3 | 17.59 | 31.78 | 0 | 10.3 | 17.59 | 31.78 | 24.41 | 353 | 0 |
| 5 | 0 | 5 | 9.88 | 17.59 | 31.78 | 10 | 5.94 | 17.57 | 31.74 | 25.01 | 296 | 0.033 |
| 10 | 2 | 10 | 5.94 | 17.57 | 31.74 | 20 | 5.16 | 17.69 | 31.96 | 25.28 | 270 | 0.061 |
| 15 | 〃 | 15 | 5.51 | 17.66 | 31.91 | 30 | 1.51 | 17.73 | 32.03 | 25.65 | 235 | 0.086 |
| 20 | 〃 | 20 | 5.16 | 17.69 | 31.96 | 50 | 1.48 | 17.72 | 32.02 | 25.64 | 236 | 0.133 |
| 25 | 0 | 25 | 2.37 | 17.72 | 32.02 | | | | | | | |
| 30 | 2 | 30 | 1.51 | 17.73 | 32.03 | | | | | | | |
| 50 | 〃 | 50 | 1.48 | 17.72 | 32.02 | | | | | | | |
| 65 | 〃 | 65 | 1.38 | 17.70 | 31.98 | | | | | | | |

**Station Os 43**

Date July 13 Time 2107～2144 (S.M.T.) Latitude 56°04′N Longitude 163°56′W
Wind NE 2 Weather b Air Temp. 11.4°C Sea NE 2 Swell × Col. × Tr. 12m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 11.0 | (17.71) | (32.00) | 0 | 11.0 | 17.71 | 32.00 | 24.46 | 348 | 0 |
| 10 | 0 | 10 | 7.99 | 17.71 | 32.00 | 10 | 7.99 | 17.71 | 32.00 | 24.94 | 303 | 0.033 |
| 20 | 〃 | 20 | 7.28 | 17.72 | 32.02 | 20 | 7.28 | 17.72 | 32.02 | 25.05 | 292 | 0.063 |
| 30 | 〃 | 30 | 5.08 | 17.73 | 32.03 | 30 | 5.08 | 17.73 | 32.03 | 25.34 | 265 | 0.091 |
| 50 | 〃 | 50 | 1.78 | 17.80 | 32.16 | 50 | 1.78 | 17.80 | 32.16 | 25.74 | 227 | 0.140 |
| 65 | 〃 | 65 | 1.78 | 17.81 | 32.18 | 75 | 1.75 | 18.81 | 32.18 | 25.76 | 225 | 0.197 |
| 80 | 〃 | 80 | 1.70 | 17.81 | 32.18 | | | | | | | |

Table 12. (Continued)

**Station Os 44**

Date July 14 Time 0535～0558 (S.M.T.) Latitude 55°07′N Longitude 164°59′W

Wind SE 3 Weather b Air Temp. 10.6°C Sea SE 3 Swell SSE 1 Col. 7 Tr. 6m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.4 | 17.29 | 32.32 | 0 | 8.4 | 17.89 | 32.32 | 25.14 | 284 | 0 |
| 10 | 17 | 10 | 6.91 | 17.88 | 32.30 | 10 | 6.91 | 17.88 | 32.30 | 25.32 | 267 | 0.028 |
| 20 | 〃 | 19 | 6.48 | 17.86 | 32.27 | 20 | 6.45 | 17.86 | 32.27 | 25.36 | 263 | 0.055 |
| 30 | 〃 | 28 | 6.31 | (17.88) | (32.30) | 30 | 6.28 | 17.89 | 32.32 | 25.42 | 257 | 0.081 |
| 50 | 〃 | 48 | 6.03 | (17.96) | (32.45) | 50 | 6.01 | 17.97 | 32.47 | 25.58 | 242 | 0.131 |
| 75 | 〃 | 72 | 5.94 | 18.09 | 32.68 | | | | | | | |

**Station Os 45**

Date July 14 Time 1830～1902 (S.M.T.) Latitude 54°05′N Longitude 163°34′W

Wind NW 2 Weather b Air Temp. 12.7°C Sea NW 2 Swell E 2 Col. 4 Tr. 8m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 11.3 | 17.83 | 32.21 | 0 | 11.3 | 17.83 | 32.21 | 24.58 | 337 | 0 |
| 10 | 7 | 10 | 10.24 | 17.80 | 32.16 | 10 | 10.24 | 17.80 | 32.16 | 24.71 | 325 | 0.033 |
| 20 | 〃 | 20 | 8.23 | (17.80) | (32.16) | 20 | 8.23 | 17.80 | 32.16 | 25.03 | 294 | 0.064 |
| 30 | 〃 | 30 | 6.79 | 17.83 | 32.21 | 30 | 6.79 | 17.83 | 32.21 | 25.28 | 270 | 0.092 |
| 50 | 〃 | 50 | (5.26) | (17.86) | (32.27) | 50 | 5.26 | 17.86 | 32.27 | 25.51 | 249 | 0.144 |
| 75 | 〃 | 75 | 4.74 | 17.95 | 32.43 | 75 | 4.74 | 18.95 | 32.43 | 25.69 | 241 | 0.204 |
| 100 | 〃 | 99 | 4.74 | 18.04 | 32.59 | 100 | 4.74 | 18.04 | 32.59 | 25.82 | 219 | 0.260 |

Table 12. (Continued)

**Station Os 46**

Date July 15 Time 0840～0918 (S.M.T.) Latitude 54°15′N Longitude 160°40′W
Wind NNW 2 Weather b Air Temp. 13.8°C Sea NNW 2 Swell W 1 Col. 4 Tr. 10m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 11.6 | 17.85 | 32.25 | 0 | 11.6 | 17.85 | 32.25 | 24.55 | 340 | 0 |
| 10 | 0 | 10 | 9.66 | 17.84 | 32.23 | 10 | 9.66 | 17.84 | 32.23 | 24.87 | 309 | 0.033 |
| 20 | 〃 | 20 | 7.41 | 17.84 | 32.23 | 20 | 7.41 | 17.84 | 32.23 | 25.20 | 278 | 0.062 |
| 30 | 〃 | 30 | 5.25 | 17.90 | 32.34 | 30 | 5.25 | 17.90 | 32.34 | 25.56 | 244 | 0.088 |
| 50 | 〃 | 50 | 5.77 | (17.96) | (32.45) | 50 | 5.77 | 17.96 | 32.45 | 25.59 | 241 | 0.137 |
| 75 | 17 | 72 | 5.23 | 18.10 | 32.70 | 75 | 5.18 | 18.11 | 32.72 | 25.87 | 214 | 0.194 |
| 100 | 〃 | 96 | 5.06 | (18.23) | (32.94) | 100 | 5.08 | 18.26 | 32.99 | 26.10 | 192 | 0.245 |
| 125 | 〃 | 120 | 5.15 | (18.36) | (33.17) | 150 | 5.21 | 18.50 | 33.42 | 26.42 | 162 | 0.334 |
| 150 | 〃 | 144 | 5.16 | 18.47 | 33.37 | | | | | | | |
| 200 | 〃 | 170 | 5.38 | 18.60 | 33.60 | | | | | | | |
| 250 | 〃 | 197 | 5.27 | 18.67 | 33.73 | | | | | | | |

**Station Os 47**

Date July 15 Time 1915～1950 (S.M.T.) Latitude 54°14′N Longitude 158°37′W
Wind SSW 2 Weather bc Air Temp. 11.9°C Sea SSW 2 Swell E 1 Col. × Tr. 17m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | (11.9 ) | 18.21 | 32.90 | 0 | 11.9 | 18.21 | 32.90 | 25.00 | 297 | 0 |
| 10 | 6 | 10 | 11.93 | 18.21 | 32.90 | 10 | 11.93 | 18.21 | 32.90 | 24.99 | 298 | 0.030 |
| 20 | 〃 | 20 | 9.83 | (18.21) | (32.90) | 20 | 9.83 | 18.21 | 32.90 | 25.37 | 262 | 0.058 |
| 30 | 〃 | 30 | 6.35 | (18.22) | 32.92 | 30 | 6.35 | 18.22 | 32.92 | 25.89 | 212 | 0.082 |
| 50 | 〃 | 50 | 4.38 | 18.24 | 32.95 | 50 | 4.38 | 18.24 | 32.95 | 26.14 | 189 | 0.122 |
| 80 | 7 | 80 | 3.63 | 18.35 | 33.15 | 75 | 3.68 | 18.32 | 33.10 | 26.33 | 171 | 0.167 |
| 105 | 〃 | 104 | 3.91 | 18.47 | 33.37 | 100 | 3.85 | 18.44 | 33.31 | 26.49 | 155 | 0.208 |
| 130 | 〃 | 129 | 4.10 | (18.59) | (33.59) | 150 | 4.10 | 18.72 | 33.82 | 26.85 | 121 | 0.277 |
| 155 | 〃 | 154 | 4.09 | 18.74 | 33.86 | 200 | 4.00 | 18.92 | 34.18 | 27.16 | 92 | 0.331 |
| 210 | 〃 | 209 | 3.92 | 18.93 | 34.20 | 300 | 3.88 | 18.99 | 34.31 | 27.27 | 81 | 0.420 |
| 310 | 0 | 305 | 3.84 | (18.99) | 34.31 | 400 | 3.77 | 19.03 | 34.38 | 27.34 | 75 | 0.501 |
| 420 | 〃 | (414) | (3.74) | 19.03 | 34.38 | 500 | 3.64 | 19.06 | 34.43 | 27.40 | 69 | 0.577 |
| 520 | 〃 | 513 | 3.69 | (19.06) | (34.43) | 600 | 3.53 | 19.07 | 34.45 | 27.42 | 67 | 0.650 |
| 630 | 〃 | 622 | 3.51 | 19.07 | 34.45 | 800 | 3.20 | 19.12 | 34.54 | 27.52 | 58 | 0.787 |
| 830 | 〃 | 818 | 3.14 | 19.14 | 34.58 | 1000 | 2.85 | 19.16 | 34.61 | 27.61 | 49 | 0.908 |
| 1040 | 〃 | 1024 | 2.81 | 19.17 | 34.63 | | | | | | | |

Table 12. (Continued)

**Station Os 48**

Date July 16 Time 1830～1905 (S.M.T.) Latitude 54°39′N Longitude 156°02′W
Wind NNW 2 Weather f Air Temp. 11.2°C Sea NNW 2 Swell E 1 Col. × Tr. 20m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 11.4 | 18.28 | 33.03 | 0 | 11.4 | 18.28 | 33.03 | 25.19 | 279 | 0 |
| 10 | 7 | 10 | 12.3 | (18.28) | (33.03) | 10 | 10.50 | 18.28 | 33.03 | 25.35 | 264 | 0.027 |
| 20 | 〃 | 20 | 9.63 | 18.30 | 33.06 | 20 | 9.63 | 18.30 | 33.06 | 25.53 | 247 | 0.053 |
| 30 | 〃 | 30 | 8.55 | 18.29 | 33.04 | 30 | 8.55 | 18.29 | 33.04 | 25.68 | 232 | 0.077 |
| 50 | 〃 | 50 | 5.44 | (18.29) | (33.04) | 50 | 5.44 | 18.29 | 33.04 | 26.10 | 192 | 0.120 |
| 80 | 6 | 80 | 3.89 | 18.47 | 33.37 | 75 | 3.98 | 18.40 | 33.24 | 26.41 | 163 | 0.160 |
| 105 | 〃 | 104 | 4.17 | 18.54 | 33.50 | 100 | 4.10 | 18.55 | 33.51 | 26.61 | 144 | 0.199 |
| 130 | 〃 | 129 | 4.42 | (18.65) | (33.69) | 150 | 4.28 | 18.70 | 33.78 | 26.81 | 125 | 0.267 |
| 155 | 〃 | 154 | 4.23 | (18.72) | (33.82) | 200 | 4.05 | 18.79 | 33.95 | 26.96 | 111 | 0.327 |
| 210 | 〃 | 209 | 4.01 | 18.81 | 33.98 | 300 | 3.88 | 18.88 | 34.11 | 27.11 | 97 | 0.433 |
| 300 | 20 | 267 | 3.97 | (18.86) | (34.07) | 400 | 3.78 | 18.94 | 34.22 | 27.21 | 87 | 0.528 |
| 400 | 〃 | 355 | 3.84 | (18.92) | (34.18) | 500 | 3.65 | 18.98 | 34.29 | 27.27 | 81 | 0.616 |
| 500 | 〃 | 444 | 3.73 | 18.95 | 34.24 | | | | | | | |

**Station Os 49**

Date July 17 Time 0830～0915 (S.M.T.) Latitude 55°07′N Longitude 153°25′W
Wind NNW 3 Weather c Air Temp. 13.4°C Sea NNW 3 Swell NNE 2 Col. 4 Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 12.0 | 18.11 | 32.72 | 0 | 12.0 | 18.11 | 32.72 | 24.84 | 312 | 0 |
| 10 | 12 | 10 | 11.94 | 18.11 | 32.72 | 10 | 11.94 | 18.11 | 32.72 | 24.85 | 311 | 0.031 |
| 20 | 〃 | 19 | 11.70 | 18.13 | 32.76 | 20 | 11.60 | 18.13 | 32.76 | 24.94 | 303 | 0.062 |
| 30 | 〃 | 29 | 10.30 | 18.15 | 32.79 | 30 | 10.28 | 18.15 | 32.79 | 25.20 | 295 | 0.092 |
| 50 | 〃 | 49 | 5.13 | (18.20) | (32.88) | 50 | 5.00 | 18.20 | 32.88 | 26.01 | 201 | 0.142 |
| 75 | 28 | 67 | 4.36 | 18.25 | 32.97 | 75 | 4.23 | 18.28 | 33.03 | 26.21 | 182 | 0.190 |
| 100 | 〃 | 88 | 4.11 | 18.32 | 33.10 | 100 | 4.05 | 18.50 | 33.42 | 26.55 | 150 | 0.232 |
| 125 | 〃 | 110 | 4.10 | 18.66 | 33.71 | 150 | 4.45 | 18.81 | 33.98 | 26.95 | 112 | 0.298 |
| 150 | 〃 | 132 | 4.65 | 18.77 | 33.91 | 200 | 4.08 | 18.87 | 34.09 | 27.08 | 99 | 0.351 |
| 200 | 〃 | 177 | 4.12 | (18.84) | (34.04) | 300 | 3.97 | 18.92 | 34.18 | 27.16 | 92 | 0.448 |
| 330 | 40 | (250) | 4.02 | (18.90) | (34.15) | | | | | | | |
| 450 | 〃 | 353 | 3.90 | 18.94 | 34.22 | | | | | | | |

Table 12. (Continued)

**Station Os 50**

Date July 18 Time 0835~0915 (S.M.T.) Latitude 55°54′N Longitude 149°24′W
Wind NE 5 Weather o Air Temp. 11.4°C Sea × Swell NE 3 Col. 5 Tr. 16m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 11.2 | 18.10 | 32.70 | 0 | 11.2 | 18.10 | 32.70 | 24.96 | 301 | 0 |
| 10 | 19 | 10 | 11.13 | 18.09 | 32.68 | 10 | 11.13 | 18.09 | 32.68 | 24.96 | 301 | 0.030 |
| 20 | 〃 | 19 | 7.55 | 18.09 | 32.68 | 20 | 7.00 | 18.09 | 32.68 | 25.62 | 238 | 0.057 |
| 30 | 〃 | 29 | 5.56 | 18.13 | 32.76 | 30 | 5.35 | 18.13 | 32.76 | 25.88 | 213 | 0.080 |
| 50 | 〃 | 48 | 4.87 | (18.16) | (32.81) | 50 | 4.85 | 18.16 | 32.81 | 25.98 | 204 | 0.122 |
| 85 | 30 | 75 | 5.12 | 18.31 | 33.08 | 75 | 5.12 | 18.31 | 33.08 | 26.16 | 187 | 0.171 |
| 110 | 〃 | 91 | 5.37 | 18.54 | 33.50 | 100 | 5.32 | 18.64 | 33.68 | 26.61 | 144 | 0.213 |
| 140 | 〃 | 123 | 4.97 | (18.70) | (33.78) | 150 | 4.73 | 18.75 | 33.87 | 26.83 | 123 | 0.280 |
| 165 | 〃 | 144 | 4.73 | 18.74 | 33.86 | 200 | 4.44 | 18.80 | 33.96 | 26.93 | 114 | 0.340 |
| 220 | 〃 | 191 | (4.49) | 18.80 | 33.96 | 300 | 4.08 | 18.88 | 34.11 | 27.09 | 98 | 0.448 |
| | | — | — | — | — | 400 | 3.88 | 18.92 | 34.18 | 27.17 | 91 | 0.545 |
| | | — | — | — | — | 500 | 3.68 | 18.96 | 34.25 | 27.24 | 84 | 0.637 |
| 560 | 58 | (295) | 4.10 | 18.88 | 34.11 | | | | | | | |
| 670 | 〃 | (355) | 3.94 | (18.90) | (34.15) | | | | | | | |
| 890 | 〃 | 477 | 3.76 | 18.96 | 34.25 | | | | | | | |

**Station Os 51**

Date July 19 Time 0835~0920 (S.M.T.) Latitude 56°52′N Longitude 145°22′W
Wind E 4 Weather c Air Temp. 11.3°C Sea E 4 Swell SE 1 Col. 5 Tr. 15m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 10.8 | 18.16 | 32.81 | 0 | 10.8 | 18.16 | 32.81 | 25.12 | 286 | 0 |
| 10 | 14 | 10 | 10.82 | 18.16 | 32.81 | 10 | 10.82 | 18.16 | 32.81 | 25.12 | 286 | 0.029 |
| 20 | 〃 | 19 | 7.45 | (18.16) | (32.81) | 20 | 7.10 | 18.16 | 32.81 | 25.70 | 230 | 0.055 |
| 35 | 〃 | 34 | 5.24 | 18.19 | 32.86 | 30 | 5.36 | 18.19 | 32.86 | 25.96 | 206 | 0.077 |
| 55 | 〃 | 54 | 4.81 | (18.20) | (32.88) | 50 | 4.87 | 18.20 | 32.88 | 26.03 | 199 | 0.118 |
| 85 | 26 | 77 | 4.77 | 18.26 | 32.99 | 75 | 4.75 | 18.25 | 32.97 | 26.12 | 191 | 0.167 |
| 110 | 〃 | 99 | 5.22 | 18.54 | 33.50 | 100 | 5.21 | 18.54 | 33.50 | 26.48 | 156 | 0.211 |
| 140 | 〃 | 126 | 5.25 | 18.71 | 33.80 | 150 | 4.95 | 18.76 | 33.89 | 26.82 | 124 | 0.281 |
| 165 | 〃 | 149 | 4.95 | (18.76) | (33.89) | 200 | 4.39 | 18.82 | 34.00 | 26.97 | 110 | 0.340 |
| 220 | 〃 | 200 | 4.39 | (18.82) | (34.00) | 300 | 4.15 | 18.89 | 34.13 | 27.10 | 98 | 0.446 |
| 330 | 52 | 217 | (4.30) | 18.82 | 34.00 | 400 | 4.01 | 18.91 | 34.16 | 27.14 | 94 | 0.545 |
| 450 | 〃 | 280 | 4.19 | 18.86 | 34.07 | 500 | 3.87 | 18.94 | 34.22 | 27.20 | 88 | 0.641 |
| 560 | 〃 | 420 | 3.99 | 18.92 | 34.18 | 600 | 3.70 | 18.96 | 34.25 | 27.24 | 84 | 0.733 |
| 670 | 〃 | 580 | 3.72 | 18.95 | 34.24 | 800 | 3.26 | 19.02 | 34.36 | 27.38 | 71 | 0.900 |
| 890 | 〃 | 750 | (3.36) | 19.00 | 34.33 | 1000 | 2.83 | 19.06 | 34.43 | 27.47 | 62 | 1.046 |
| 1110 | 〃 | (1020) | 2.75 | 19.07 | 34.45 | | | | | | | |

Table 12. (Continued)

**Station Os 52**

Date Aug. 10 Time 1533～1800 (S.M.T.) Latitude 48°14′N Longitude 146°32′W
Wind WSW 4 Weather c Air Temp. 13.3°C Sea WSW 4 Swell WNW 2 Col. 4 Tr. 12m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 13.3 | (18.11) | (32.72) | 0 | 13.3 | 18.11 | 32.72 | 24.59 | 336 | 0 |
| 10 | 11 | 10 | 13.25 | 18.11 | 32.72 | 10 | 13.25 | 18.11 | 32.72 | 24.60 | 335 | 0.034 |
| 20 | 〃 | 20 | 12.37 | 18.11 | 32.72 | 20 | 12.37 | 18.11 | 32.72 | 24.78 | 318 | 0.067 |
| 30 | 〃 | 30 | 9.70 | 18.14 | 32.77 | 30 | 9.70 | 18.14 | 32.77 | 25.29 | 269 | 0.096 |
| 50 | 〃 | 49 | 7.12 | 18.16 | 32.81 | 50 | 7.05 | 18.16 | 32.81 | 25.71 | 230 | 0.146 |
| 80 | 17 | 78 | 5.48 | 18.18 | 32.85 | 75 | 5.66 | 18.18 | 32.85 | 25.92 | 210 | 0.201 |
| 105 | 〃 | 101 | 5.00 | 18.22 | 32.92 | 100 | 5.02 | 18.22 | 32.92 | 26.04 | 198 | 0.252 |
| 130 | 〃 | 126 | 5.26 | 18.42 | 33.28 | 150 | 5.32 | 18.66 | 33.71 | 26.64 | 141 | 0.337 |
| 155 | 〃 | 149 | 5.32 | 18.66 | 33.71 | 200 | 4.71 | 18.74 | 33.86 | 26.80 | 126 | 0.405 |
| 210 | 〃 | 201 | 4.69 | 18.74 | 33.86 | 300 | 4.05 | 18.80 | 33.96 | 26.98 | 109 | 0.525 |
| 330 | 25 | 295 | (4.08) | 18.76 | 33.89 | 400 | 3.84 | 18.84 | 34.04 | 27.06 | 101 | 0.634 |
| 450 | 〃 | 405 | 3.81 | 18.84 | 34.04 | 500 | 3.68 | 18.88 | 34.11 | 27.13 | 95 | 0.737 |
| 560 | 〃 | 503 | 3.66 | (18.88) | (34.11) | 600 | 3.58 | 18.92 | 34.18 | 27.20 | 88 | 0.834 |
| 670 | 〃 | 600 | (3.58) | 18.92 | 34.18 | 800 | 3.29 | 18.98 | 34.29 | 27.31 | 78 | 1.012 |
| 890 | 〃 | 792 | 3.30 | (18.98) | (34.29) | 1000 | 2.93 | 19.02 | 34.36 | 27.41 | 68 | 1.172 |
| 670 | 35 | 1000 | 2.93 | 19.02 | 34.36 | 1200 | 2.56 | 19.07 | 34.45 | 27.51 | 59 | 1.314 |
| 1110 | 〃 | (1205) | 2.56 | 19.07 | 34.45 | 1500 | 2.28 | 19.12 | 34.54 | 27.61 | 49 | 1.502 |
| 1340 | 〃 | (1492) | 2.29 | 19.12 | 34.54 | | | | | | | |

**Station Os 53**

Date Aug. 16 Time 1530～1602 (S.M.T.) Latitude 43°09′N Longitude 170°30′W
Wind N 2 Weather o Air Temp. 13.2°C Sea N 2 Swell WNW 1 Col. 4 Tr. 13m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 13.9 | | | 0 | 13.9 | | | | | |
| 10 | 3 | 10 | 13.81 | | | 10 | 13.81 | | | | | |
| 20 | 〃 | 20 | 13.72 | | | 20 | 13.72 | | | | | |
| 30 | 〃 | 30 | 13.44 | | | 30 | 13.44 | | | | | |
| 50 | 〃 | 50 | 8.64 | | | 50 | 8.64 | | | | | |
| 75 | 4 | 75 | 7.09 | | | 75 | 7.09 | | | | | |
| 100 | 〃 | 100 | 6.82 | | | 100 | 6.82 | | | | | |
| 125 | 〃 | 125 | 6.65 | | | 150 | 6.76 | | | | | |
| 150 | 〃 | 150 | 6.76 | | | 200 | 6.90 | | | | | |
| 200 | 〃 | 200 | 6.90 | | | 300 | 6.18 | | | | | |
| 310 | 17 | 299 | 6.19 | | | 400 | 4.90 | | | | | |
| 420 | 〃 | 404 | 4.88 | | | 500 | 4.26 | | | | | |
| 520 | 〃 | 504 | 4.22 | | | 600 | 4.00 | | | | | |
| 630 | 〃 | 605 | 3.99 | | | 800 | 3.60 | | | | | |
| 830 | 〃 | 797 | 3.61 | | | 1000 | 3.23 | | | | | |
| 1040 | 〃 | — | — | | | 1200 | 2.83 | | | | | |
| 1250 | 〃 | (1200) | 2.83 | | | 1500 | 2.49 | | | | | |
| 1560 | 〃 | (1500) | 2.49 | | | | | | | | | |

Table 12. (Continued)

**Station Os 54**

Date Aug. 18 Time 1530~1600 (S.M.T) Latitude 42°09′N Longitude 179°42′W

Wind SSW 4 Weather o Air Temp. 17.8°C Sea SSW 4 Swell SW 1 Col. × Tr. 14m

| Wire length (m) | Wire angle (degree) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | σt (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 15.7 | | | 0 | 15.7 | | | | | |
| 10 | 15 | 10 | 15.37 | | | 10 | 15.37 | | | | | |
| 20 | 〃 | 19 | 15.28 | | | 20 | 15.00 | | | | | |
| 30 | 〃 | 29 | 13.18 | | | 30 | 13.10 | | | | | |
| 50 | 〃 | 49 | 11.07 | | | 50 | 11.00 | | | | | |
| 80 | 25 | 76 | 10.26 | | | 75 | 10.26 | | | | | |
| 105 | 〃 | 95 | (9.95) | | | 100 | 9.86 | | | | | |
| 130 | 〃 | 117 | 9.62 | | | 150 | 8.94 | | | | | |
| 155 | 〃 | 141 | 9.25 | | | 200 | 8.06 | | | | | |
| 210 | 〃 | 189 | 8.22 | | | 300 | 6.50 | | | | | |
| 330 | 45 | 258 | 7.12 | | | 400 | 5.07 | | | | | |
| 450 | 〃 | 330 | 6.31 | | | 500 | 4.94 | | | | | |
| 560 | 〃 | 410 | 4.95 | | | 600 | 4.03 | | | | | |
| 670 | 48 | 453 | 4.69 | | | 800 | 3.53 | | | | | |
| 890 | 〃 | 623 | 3.95 | | | 1000 | 3.18 | | | | | |
| 1110 | 〃 | 806 | 3.53 | | | 1200 | 2.87 | | | | | |
| 1340 | 〃 | 1010 | 3.04 | | | | | | | | | |
| 1670 | 〃 | 1367 | 2.59 | | | | | | | | | |

## 7. Data on Dissolved Oxygen, Phosphate and Silicate

(溶存酸素，燐酸塩及珪酸塩記録)

Dissolved oxygen, phosphate and silicate were measured at every hydrographic station.

Sample water was collected from all regular depths from the surface to about 1500 m.

Content of dissolved oxygen was measured by ordinary Winkler method aboard the ship.

Measurement aboard and data processing of dissolved oxygen were made by M. Omori.

Content of inorganic phosphate and silicate was measured aboard the ship by means of an Photo-electric Spectrometer Model 7A (The pass of sample is 10 mm long) manufactured by Tokyo Photo Electric Laboratory Co., Ltd.

Measurement aboard and data processing of inorganic phosphate and silicate were made by T. Miwa.

Table 13. Data on dissolved oxygen, phosphate and silicate in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

**Station Os 1**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | | 1.40 | 23 |
| 10 | 8 | 10 | | 1.40 | 23 |
| 20 | 〃 | 20 | | 1.45 | 23 |
| 30 | 〃 | 30 | | 1.45 | 23 |
| 50 | 〃 | 50 | | 1.40 | 23 |
| 75 | 16 | 72 | | 1.50 | 23 |
| 100 | 〃 | 96 | | 1.45 | 23 |
| 125 | 〃 | 120 | | 1.50 | 23 |
| 150 | 〃 | 144 | | 1.65 | 33 |
| 200 | 〃 | 192 | | 1.85 | 51 |
| 310 | 19 | | 1.30 | 1.95 | 54 |
| 420 | 〃 | | 0.90 | 2.05 | 61 |
| 520 | 〃 | | 0.50 | 2.05 | 69 |
| 630 | 〃 | | 0.66 | 2.05 | 75 |
| 830 | 〃 | | 0.65 | 2.05 | 81 |
| 1040 | 〃 | | 0.76 | 2.10 | 90 |
| 1250 | 〃 | | 0.83 | 2.05 | 94 |
| 1550 | 〃 | | 1.70 | 2.10 | 98 |

**Station Os 2**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.79 | 1.45 | 22 |
| 10 | 0 | 10 | 7.68 | 1.45 | 22 |
| 20 | 〃 | 20 | 7.62 | 1.45 | 22 |
| 30 | 〃 | 30 | 7.67 | 1.45 | 22 |
| 50 | 〃 | 50 | 7.52 | 1.45 | 22 |
| 75 | 〃 | 75 | 7.46 | 1.55 | 22 |
| 100 | 〃 | 100 | 7.59 | 1.50 | 22 |
| 125 | 〃 | 125 | 7.46 | 1.60 | 27 |
| 150 | 〃 | 150 | 7.04 | 1.75 | 35 |
| 200 | 〃 | 200 | 2.60 | 1.95 | 49 |
| 300 | 5 | 299 | 1.48 | 2.05 | 60 |
| 400 | 〃 | 397 | 1.41 | 2.05 | 66 |
| 500 | 〃 | 496 | 0.86 | 2.05 | 74 |
| 600 | 〃 | 596 | 0.61 | 2.05 | 81 |
| 800 | 〃 | 792 | 0.87 | 2.10 | 85 |
| 1010 | 〃 | 1000 | 0.63 | 2.10 | 93 |
| 1210 | 〃 | 1197 | 0.85 | 2.05 | 97 |
| 1510 | 〃 | 1492 | 1.34 | 2.05 | 100 |

Table 13. (Continued)

**Station Os 3**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.53 | 1.40 | 21 |
| 10 | 15 | 10 | 7.52 | 1.35 | 21 |
| 20 | 〃 | 19 | 7.44 | 1.40 | 21 |
| 30 | 〃 | 29 | 7.56 | 1.40 | 21 |
| 50 | 〃 | 49 | 7.57 | 1.35 | 21 |
| 75 | 〃 | 73 | 7.24 | 1.40 | 22 |
| 100 | 25 | 91 | 7.44 | 1.40 | 24 |
| 125 | 〃 | 114 | 5.03 | 1.60 | 26 |
| 150 | 〃 | 136 | 3.84 | 1.75 | 39 |
| 200 | 〃 | 182 | 1.18 | 1.75 | 50 |
| 330 | 35 | 267 | 0.68 | 1.95 | 62 |
| 450 | 〃 | (365) | 0.63 | 2.05 | 66 |
| 560 | 〃 | (455) | 0.51 | 2.05 | 72 |
| 670 | 〃 | 543 | 0.73 | 2.00 | 72 |
| 890 | 〃 | 726 | 0.71 | 2.05 | 75 |
| 1110 | 〃 | (910) | 0.71 | 2.00 | 86 |
| 1340 | 〃 | (1097) | 0.86 | 2.10 | 89 |
| 1670 | 〃 | (1365) | 0.99 | 2.05 | 92 |

**Station Os 4**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.37 | 1.05 | 21 |
| 10 | 24 | 9 | 7.30 | 1.05 | 23 |
| 25 | 〃 | 23 | 7.30 | 1.05 | 22 |
| 35 | 〃 | 33 | 7.22 | 1.15 | 23 |
| 60 | 〃 | 55 | 7.52 | 1.15 | 23 |
| 95 | 〃 | 85 | 7.02 | 1.05 | 23 |
| 125 | 29 | 110 | 7.19 | 1.20 | 33 |
| 155 | 〃 | 135 | 4.68 | 1.15 | 40 |
| 185 | 〃 | 158 | 1.59 | 1.15 | 42 |
| 250 | 〃 | 219 | 0.77 | 1.80 | 48 |
| 370 | 43 | 253 | 1.03 | 1.80 | 56 |
| 490 | 〃 | (320) | 0.58 | 1.75 | 68 |
| 620 | 〃 | 407 | 0.54 | 1.75 | 68 |
| 740 | 〃 | 487 | 0.51 | 1.75 | 69 |
| 990 | 〃 | (656) | 0.54 | 1.90 | 82 |
| 1240 | 〃 | (825) | 0.55 | 1.85 | 89 |
| 1480 | 〃 | (982) | 0.62 | 1.90 | 94 |
| 1850 | 〃 | | 0.52 | 1.90 | 98 |

Table 13. (Continued)

**Station Os 5**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.17 | 1.15 | 22 |
| 10 | 0 | 10 | 7.44 | 1.15 | 24 |
| 20 | 〃 | 20 | 7.30 | 1.10 | 24 |
| 30 | 〃 | 30 | 7.30 | 1.10 | 24 |
| 50 | 〃 | 50 | 7.38 | 1.15 | 24 |
| 75 | 〃 | 75 | 6.99 | 1.25 | 24 |
| 100 | 〃 | 100 | 5.69 | 1.35 | 24 |
| 125 | 〃 | 125 | 4.10 | 1.65 | 33 |
| 150 | 〃 | 150 | 1.27 | 1.90 | 53 |
| 200 | 〃 | 200 | 1.01 | 2.00 | 57 |
| 300 | 7 | 298 | 0.53 | 2.00 | 64 |
| 400 | 〃 | (398) | 0.64 | 2.00 | 68 |
| 500 | 〃 | 497 | 0.53 | 1.95 | 68 |
| 600 | 〃 | 596 | 0.63 | 1.90 | 72 |
| 800 | 〃 | 795 | 0.65 | 1.90 | 75 |
| 1010 | 〃 | 1002 | 0.68 | 1.95 | 77 |
| 1210 | 〃 | 1200 | 0.88 | 1.95 | 81 |
| 1510 | 〃 | (1498) | 1.43 | 2.00 | 92 |

**Station Os 6**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.17 | 1.10 | 12 |
| 10 | 20 | 9 | 7.14 | 1.10 | 12 |
| 20 | 〃 | 18 | 7.11 | 1.10 | 12 |
| 30 | 〃 | 28 | 6.86 | 1.10 | 12 |
| 50 | 〃 | 47 | 7.20 | 1.30 | 12 |
| 75 | 〃 | 71 | 6.81 | 1.30 | 12 |
| 125 | 30 | 109 | 4.66 | 1.55 | 30 |
| 155 | 〃 | 134 | 3.25 | 1.65 | 35 |
| 185 | 〃 | 160 | 1.98 | 1.80 | 43 |
| 250 | 〃 | 217 | 0.93 | 1.90 | 47 |
| 370 | 50 | 260 | 0.80 | 1.90 | 51 |
| 490 | 〃 | (345) | 0.53 | 2.05 | 60 |
| 620 | 〃 | 441 | 0.42 | 2.05 | 69 |
| 740 | 〃 | 514 | 0.46 | 2.05 | 74 |
| 990 | 〃 | 705 | 0.41 | 2.05 | 78 |
| 1240 | 〃 | 883 | 0.39 | 2.00 | 83 |
| 1480 | 〃 | 1050 | 0.65 | 2.05 | 88 |
| 1850 | 〃 | | 0.85 | 2.05 | 95 |

Table 13. (Continued)

**Station Os 7**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.44 | 1.25 | 15 |
| 10 | 8 | 10 | 7.27 | 1.25 | 18 |
| 20 | 〃 | 20 | 7.22 | 1.25 | 18 |
| 30 | 〃 | 30 | 6.97 | 1.20 | 18 |
| 50 | 〃 | 50 | 7.22 | 1.30 | 18 |
| 80 | 〃 | 80 | 6.61 | 1.30 | 18 |
| 105 | 〃 | 104 | 6.53 | 1.70 | 23 |
| 130 | 〃 | 129 | 6.75 | 1.65 | 30 |
| 155 | 〃 | 154 | 5.39 | 1.65 | 35 |
| 210 | 〃 | 208 | 3.98 | 1.70 | 38 |
| 310 | 25 | (230) | 1.66 | 1.70 | 43 |
| 420 | 〃 | (310) | 1.09 | 1.35 | 50 |
| 520 | 〃 | 381 | 0.94 | 1.70 | 57 |
| 630 | 〃 | 460 | 0.58 | 1.70 | 65 |
| 830 | 〃 | 607 | 0.46 | 1.75 | 75 |
| 1040 | 〃 | 759 | 0.43 | 1.75 | 79 |
| 1250 | 〃 | 915 | 0.53 | 1.75 | 86 |
| 1560 | 〃 | 1145 | 0.45 | 1.75 | 95 |

**Station Os 8**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.21 | 1.15 | 19 |
| 10 | 2 | 10 | 7.30 | 1.20 | 20 |
| 20 | 〃 | 20 | 7.44 | 1.15 | 19 |
| 30 | 〃 | 30 | 7.42 | 1.15 | 20 |
| 50 | 〃 | 50 | 7.35 | 1.25 | 20 |
| 75 | 〃 | 75 | 7.06 | 1.20 | 19 |
| 100 | 5 | 100 | 7.13 | 1.65 | 19 |
| 125 | 〃 | 125 | 6.15 | 1.70 | 22 |
| 150 | 〃 | 150 | 5.77 | 1.65 | 32 |
| 200 | 〃 | 200 | 1.77 | 1.80 | 43 |
| 310 | 10 | 300 | 1.06 | 1.90 | 54 |
| 420 | 〃 | (403) | 0.44 | 1.95 | 61 |
| 520 | 〃 | (500) | 0.49 | 2.00 | 66 |
| 630 | 〃 | 605 | 0.46 | 1.90 | 73 |
| 830 | 〃 | (795) | 0.45 | 1.95 | 87 |
| 1040 | 〃 | (994) | 0.54 | 2.00 | 89 |
| 1250 | 〃 | (1194) | 0.64 | 1.95 | 91 |
| 1560 | 〃 | 1485 | 0.93 | 2.00 | 95 |

Table 13. (Continued)

**Station Os 9**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.24 | 1.10 | 19 |
| 10 | 3 | 10 | 7.36 | 1.15 | 17 |
| 20 | 〃 | 20 | 7.52 | 1.15 | 18 |
| 30 | 〃 | 30 | 7.42 | 1.10 | 19 |
| 50 | 〃 | 50 | 7.39 | 1.15 | 18 |
| 75 | 〃 | 75 | 6.96 | 1.20 | 19 |
| 100 | 15 | 97 | 6.98 | 1.45 | 23 |
| 125 | 〃 | 121 | 5.82 | 1.40 | 28 |
| 150 | 〃 | 145 | 2.29 | 1.85 | 45 |
| 200 | 〃 | 193 | 1.13 | 1.95 | 51 |
| 300 | 20 | 282 | 0.63 | 1.90 | 60 |
| 400 | 〃 | 355 | 0.47 | 1.90 | 64 |
| 500 | 〃 | 467 | 0.49 | 1.95 | 66 |
| 600 | 〃 | 561 | 0.42 | 2.00 | 72 |
| 800 | 〃 | 755 | 0.45 | 2.00 | 80 |
| 1010 | 〃 | (952) | 0.51 | 1.95 | 85 |
| 1210 | 〃 | 1139 | 0.75 | 2.00 | 92 |
| 1510 | 〃 | 1420 | 0.76 | 2.00 | 95 |

**Station Os 10**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.77 | 1.15 | 18 |
| 10 | 7 | 10 | 7.69 | 1.15 | 21 |
| 20 | 〃 | 20 | 7.93 | 1.20 | 21 |
| 30 | 〃 | 30 | 7.69 | 1.15 | 20 |
| 50 | 〃 | 50 | 7.46 | 1.30 | 21 |
| 75 | 〃 | 75 | 7.17 | 1.25 | 22 |
| 105 | 18 | 100 | 7.43 | 1.30 | 23 |
| 130 | 〃 | 124 | 7.07 | 1.25 | 22 |
| 155 | 〃 | 148 | 6.94 | 1.40 | 28 |
| 205 | 〃 | 195 | 3.73 | 1.70 | 40 |
| 330 | 30 | 269 | 1.29 | 1.85 | 58 |
| 450 | 〃 | (367) | 0.77 | 1.95 | 64 |
| 560 | 〃 | 460 | 0.79 | 1.98 | 71 |
| 670 | 〃 | 548 | 0.58 | 1.90 | 77 |
| 890 | 〃 | (735) | 0.61 | 1.95 | 84 |
| 1110 | 〃 | (920) | 0.57 | 2.00 | 90 |
| 1340 | 〃 | 1110 | 0.85 | 1.98 | 95 |

Table 13. (Continued)

**Station Os 11**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.84 | 1.28 | 22 |
| 10 | 8 | 10 | 7.53 | 1.33 | 22 |
| 20 | 〃 | 20 | 7.63 | 1.28 | 23 |
| 30 | 〃 | 30 | 7.69 | 1.25 | 22 |
| 50 | 〃 | 50 | 7.55 | 1.30 | 22 |
| 75 | 23 | 69 | 7.25 | 1.28 | 23 |
| 100 | 〃 | 72 | 7.40 | 1.25 | 23 |
| 125 | 〃 | 115 | 7.32 | 1.30 | 23 |
| 150 | 〃 | 138 | 7.29 | 1.28 | 25 |
| 200 | 〃 | 184 | 3.21 | 1.63 | 43 |
| 330 | 25 | 307 | 1.02 | 1.65 | 53 |
| 450 | 〃 | 419 | 1.01 | 1.70 | 62 |
| 560 | 〃 | 520 | 0.58 | 1.73 | 70 |
| 670 | 〃 | 622 | 0.45 | 1.75 | 75 |
| 890 | 〃 | 828 | 0.50 | 1.73 | 84 |
| 1110 | 〃 | 1033 | 0.59 | 1.75 | 89 |
| 1340 | 〃 | | 0.75 | 1.65 | 98 |
| 1670 | 〃 | | 1.13 | 1.78 | 103 |

**Station Os 12**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.26 | 1.28 | 22 |
| 10 | 4 | 10 | 7.33 | 1.25 | 22 |
| 20 | 〃 | 20 | 7.27 | 1.30 | 23 |
| 30 | 〃 | 30 | 7.34 | 1.28 | 23 |
| 50 | 〃 | 50 | 7.30 | 1.33 | 22 |
| 75 | 〃 | 75 | 6.90 | 1.30 | 23 |
| 100 | 〃 | 100 | 7.05 | 1.28 | 23 |
| 125 | 〃 | 125 | 7.13 | 1.50 | 24 |
| 150 | 〃 | 150 | 6.69 | 1.55 | 24 |
| 200 | 〃 | 200 | 2.13 | 1.55 | 35 |
| 300 | 26 | 277 | 0.97 | 1.53 | 52 |
| 400 | 〃 | (370) | 0.57 | 1.55 | 60 |
| 500 | 〃 | 465 | 0.78 | 1.53 | 73 |
| 600 | 〃 | 557 | 0.80 | 1.60 | 78 |
| 800 | 〃 | 754 | 0.44 | 1.65 | 82 |
| 1010 | 〃 | (940) | 0.46 | 1.63 | 89 |
| 1210 | 〃 | 1124 | 0.58 | 1.63 | 93 |
| 1510 | 〃 | (1400) | 0.83 | 1.65 | 99 |

Table 13. (Continued)

**Station Os 13**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.56 | 0.70 | 18 |
| 10 | 8 | 10 | 7.22 | 0.70 | 19 |
| 20 | 〃 | 20 | 7.24 | 0.75 | 18 |
| 30 | 〃 | 30 | 7.28 | 0.75 | 18 |
| 50 | 〃 | 50 | 7.22 | 0.85 | 17 |
| 75 | 6 | 75 | 6.74 | 0.80 | 19 |
| 100 | 〃 | 99 | 6.80 | 0.85 | 21 |
| 125 | 〃 | 124 | 6.17 | 1.00 | 26 |
| 150 | 〃 | 149 | 5.55 | 1.10 | 30 |
| 200 | 〃 | 199 | 3.44 | 1.25 | 41 |
| 300 | 24 | 275 | 1.86 | 1.40 | 52 |
| 400 | 〃 | 373 | 1.80 | 1.50 | 60 |
| 500 | 〃 | 460 | 1.27 | 1.50 | 67 |
| 600 | 〃 | (555) | 0.57 | 1.60 | 73 |
| 800 | 〃 | 745 | 0.60 | 1.70 | 80 |
| 1010 | 〃 | 943 | 0.46 | 1.65 | 86 |
| 1210 | 〃 | 1135 | 0.56 | 1.70 | 90 |
| 1510 | 〃 | | 0.65 | 1.70 | 98 |

**Station Os 14**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.96 | 1.10 | 10 |
| 10 | 15 | 10 | 7.11 | 1.10 | 11 |
| 20 | 〃 | 19 | 7.29 | 1.15 | 13 |
| 30 | 〃 | 29 | 7.24 | 1.13 | 13 |
| 50 | 〃 | 49 | 7.24 | 1.28 | 14 |
| 75 | 18 | 72 | 7.01 | 1.38 | 13 |
| 100 | 〃 | 95 | 6.57 | 1.55 | 18 |
| 125 | 〃 | 119 | 6.32 | 1.85 | 18 |
| 150 | 〃 | 143 | 5.30 | 1.88 | 20 |
| 200 | 〃 | 190 | 3.21 | 1.88 | 29 |
| 330 | 32 | 317 | 1.22 | 1.90 | 48 |
| 450 | 〃 | (431) | 0.87 | 2.15 | 52 |
| 560 | 〃 | 536 | 0.66 | 2.28 | 59 |
| 670 | 〃 | (642) | 0.45 | 2.25 | 65 |
| 890 | 〃 | (853) | 0.42 | 2.30 | 74 |
| 1110 | 43 | (1068) | 0.49 | 2.25 | 83 |
| 1340 | 〃 | | 0.56 | 2.30 | 66 |
| 1670 | 〃 | | 0.93 | 2.28 | 100 |

Table 13. (Continued)

**Station Os 15**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.90 | 1.25 | 19 |
| 10 | 26 | 9 | 6.80 | 1.30 | 20 |
| 20 | 〃 | 18 | 6.84 | 1.40 | 24 |
| 30 | 〃 | 27 | 6.89 | 1.35 | 24 |
| 50 | 〃 | 45 | 6.61 | 1.60 | 26 |
| 80 | 43 | 59 | 6.00 | 1.60 | 27 |
| 105 | 〃 | 77 | 5.98 | 1.65 | 28 |
| 130 | 〃 | 95 | 5.79 | 1.60 | 28 |
| 155 | 〃 | 114 | 5.93 | 1.65 | 28 |
| 210 | 〃 | 154 | 5.71 | 1.60 | 27 |
| 430 | 52 | (135) | 5.59 | 1.55 | 27 |
| 580 | 〃 | (182) | 5.11 | 1.65 | 28 |
| 720 | 〃 | (225) | 5.20 | 1.60 | 28 |
| 860 | 〃 | (267) | 4.44 | 1.65 | 34 |
| 1150 | 〃 | (355) | 3.13 | 1.70 | 40 |
| 1440 | 〃 | (430) | 1.19 | — | — |

**Station Os 16**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.18 | 1.30 | 25 |
| 10 | 36 | 8 | 7.33 | 1.25 | 26 |
| 20 | 〃 | 16 | 7.06 | 1.30 | 26 |
| 35 | 〃 | 28 | 6.71 | 1.35 | 27 |
| 55 | 〃 | 44 | 5.87 | 1.50 | 32 |
| 85 | 29 | 74 | 4.96 | 1.75 | 33 |
| 110 | 〃 | 97 | 4.41 | 1.80 | 36 |
| 140 | 〃 | 122 | 4.41 | 1.80 | 39 |
| 165 | 〃 | 144 | 3.92 | 1.90 | 42 |
| 220 | 〃 | 193 | 3.01 | 1.95 | 43 |
| 370 | 55 | | 2.73 | 1.95 | 43 |
| 490 | 〃 | | 2.22 | 2.05 | 45 |
| 620 | 〃 | | 4.52 | 2.06 | 45 |
| 740 | 〃 | | 0.79 | 2.10 | 51 |
| 990 | 〃 | | 1.31 | 2.20 | 62 |
| 1240 | 〃 | | 0.51 | 2.20 | 66 |
| 1480 | 〃 | | 0.77 | 2.40 | 72 |
| 1850 | 〃 | | 0.51 | 2.35 | 78 |

Table 13. (Continued)

**Station Os 17**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.13 | 1.35 | 25 |
| 10 | 10 | 10 | 7.00 | 1.35 | 24 |
| 20 | 〃 | 20 | 6.95 | 1.38 | 25 |
| 30 | 〃 | 30 | 6.94 | 1.40 | 25 |
| 50 | 〃 | 49 | 5.97 | 1.85 | 32 |
| 75 | 〃 | 74 | 5.71 | 1.85 | 32 |
| 100 | 〃 | 98 | 4.95 | 1.95 | 34 |
| 125 | 〃 | 123 | 4.76 | 1.90 | 33 |
| 150 | 〃 | 148 | 4.58 | 1.95 | 39 |
| 200 | 〃 | 197 | 4.41 | 2.10 | 41 |
| 310 | 20 | 294 | 2.56 | 2.15 | 49 |
| 420 | 〃 | 397 | 1.86 | 2.20 | 57 |
| 520 | 〃 | 493 | 1.20 | 2.25 | 65 |
| 630 | 〃 | 597 | 0.93 | 2.25 | 71 |
| 830 | 〃 | 792 | 0.53 | 2.45 | 79 |
| 1040 | 〃 | 991 | 1.64 | 2.40 | 84 |
| 1250 | 〃 | 1189 | 1.07 | 2.40 | 72 |
| 1560 | 〃 | (1489) | 0.52 | 2.45 | 91 |

**Station Os 18**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.90 | 1.10 | 10 |
| 10 | 4 | 10 | 6.91 | 1.10 | 11 |
| 20 | 〃 | 20 | 6.62 | 1.15 | 11 |
| 30 | 〃 | 30 | 7.00 | 1.10 | 12 |
| 50 | 〃 | 50 | 6.55 | 1.15 | 12 |
| 80 | 17 | 77 | 5.52 | 1.25 | 13 |
| 105 | 〃 | 101 | 4.43 | 1.80 | 26 |
| 130 | 〃 | 125 | 4.06 | 1.70 | 29 |
| 155 | 〃 | 149 | 2.88 | 1.85 | 32 |
| 210 | 〃 | 201 | 2.03 | 1.95 | 40 |
| 310 | 35 | 247 | 1.36 | 2.30 | 51 |
| 420 | 〃 | 344 | 0.74 | 2.25 | 60 |
| 520 | 〃 | 429 | 0.73 | 2.30 | 65 |
| 630 | 〃 | 530 | 0.57 | 2.25 | 72 |
| 830 | 〃 | 705 | 0.62 | 2.25 | 80 |
| 1040 | 〃 | 890 | 0.64 | 2.15 | 85 |
| 1250 | 〃 | | 0.64 | 2.35 | 82 |
| 1560 | 〃 | | 0.80 | 2.35 | 92 |

Table 13. (Continued)

**Station Os 19**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.14 | 1.58 | 24 |
| 10 | 10 | 10 | 7.02 | 1.63 | 23 |
| 20 | 〃 | 20 | 7.18 | 1.60 | 24 |
| 30 | 〃 | 30 | 7.53 | 1.73 | 24 |
| 50 | 〃 | 50 | 7.30 | 1.83 | 25 |
| 75 | 11 | 74 | 7.09 | 1.85 | 25 |
| 100 | 〃 | 98 | 6.93 | 2.13 | 27 |
| 125 | 〃 | 123 | 4.52 | 2.25 | 37 |
| 150 | 〃 | 148 | 2.55 | 2.58 | 53 |
| 200 | 〃 | 197 | 1.52 | 2.70 | 59 |
| 310 | 22 | 279 | 0.93 | 2.78 | 67 |
| 420 | 〃 | (380) | 0.75 | 2.88 | 71 |
| 520 | 〃 | (471) | 0.56 | 2.83 | 76 |
| 630 | 〃 | (572) | 0.56 | 2.85 | 88 |
| 830 | 〃 | (755) | 0.55 | 2.73 | 71 |
| 1040 | 〃 | 945 | 0.56 | 2.88 | 92 |
| 1250 | 〃 | 1137 | 0.62 | 2.90 | 100 |
| 1560 | 〃 | (1410) | 1.09 | 2.90 | 104 |

**Station Os 20**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.16 | 1.60 | 17 |
| 10 | 7 | 10 | 6.97 | 1.68 | 16 |
| 20 | 〃 | 20 | 7.18 | 1.60 | 15 |
| 30 | 〃 | 30 | 7.25 | 1.65 | 15 |
| 50 | 〃 | 50 | 7.22 | 1.70 | 14 |
| 75 | 〃 | 75 | 7.06 | 1.88 | 15 |
| 100 | 〃 | 99 | 7.15 | 1.95 | 18 |
| 125 | 〃 | 124 | 6.77 | 1.93 | 29 |
| 150 | 〃 | 149 | 4.13 | 2.15 | 40 |
| 200 | 〃 | 199 | 2.06 | 2.60 | 56 |
| 310 | 10 | 296 | 0.93 | 2.80 | 64 |
| 420 | 〃 | 406 | 0.74 | 2.83 | 75 |
| 520 | 〃 | 500 | 0.57 | 2.90 | 79 |
| 630 | 〃 | 607 | 0.55 | 2.90 | 86 |
| 830 | 〃 | 802 | 0.67 | 2.85 | 89 |
| 1040 | 〃 | 1008 | 0.69 | 2.83 | 95 |
| 1250 | 〃 | (1215) | 0.73 | 2.90 | 98 |
| 1560 | 〃 | (1518) | 1.18 | 2.90 | 102 |

Table 13. (Continued)

**Station Os 21**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 5.78 | 1.05 | 13 |
| 10 | 6 | 10 | 7.03 | 1.10 | 11 |
| 20 | 〃 | 20 | 7.36 | 1.25 | 10 |
| 30 | 〃 | 30 | 7.27 | 1.25 | 9 |
| 50 | 〃 | 50 | 7.16 | 1.28 | 10 |
| 75 | 0 | 75 | 6.88 | 1.30 | 13 |
| 100 | 〃 | 100 | 7.10 | 1.28 | 17 |
| 125 | 〃 | 125 | 6.09 | 1.40 | 20 |
| 150 | 〃 | 150 | 3.84 | 1.78 | 34 |
| 200 | 〃 | 200 | 2.13 | 2.15 | 42 |
| 310 | 12 | 300 | 1.04 | 2.20 | 55 |
| 420 | 〃 | 406 | 0.74 | 2.20 | 59 |
| 520 | 〃 | 503 | 0.68 | 2.25 | 69 |
| 630 | 〃 | (610) | 0.61 | 2.20 | 75 |
| 830 | 〃 | 804 | 0.64 | 2.23 | 83 |
| 1040 | 〃 | 1009 | 0.70 | 2.20 | 88 |
| 1250 | 〃 | (1212) | 0.80 | 2.18 | 90 |
| 1560 | 〃 | (1512) | 1.10 | 2.25 | 92 |

**Station Os 22**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.13 | 1.45 | 3 |
| 10 | 15 | 10 | 7.17 | 1.35 | 3 |
| 20 | 〃 | 19 | 7.33 | 1.38 | 2 |
| 30 | 〃 | 29 | 7.42 | 1.35 | 3 |
| 50 | 〃 | 49 | 7.49 | 1.33 | 2 |
| 80 | 〃 | 78 | 7.13 | 1.35 | 2 |
| 105 | 〃 | 102 | 7.27 | 1.33 | 3 |
| 130 | 〃 | 126 | 6.72 | 1.45 | 9 |
| 155 | 〃 | 150 | 3.24 | 1.43 | 24 |
| 210 | 〃 | 203 | 1.75 | 1.45 | 35 |
| 330 | 35 | | 1.61 | 2.25 | 40 |
| 450 | 〃 | | 1.01 | 2.30 | 43 |
| 560 | 40 | | 0.99 | 2.30 | 48 |
| 670 | 35 | | 0.63 | 2.40 | 48 |
| 890 | 〃 | | 0.58 | 2.30 | 48 |
| 1110 | 〃 | | — | — | — |
| 1340 | 〃 | | 0.74 | 2.30 | 58 |
| 1670 | 〃 | | 0.62 | 2.28 | 65 |

Table 13. (Continued)

**Station Os 23**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.21 | 1.33 | 10 |
| 10 | 9 | 10 | 7.21 | 1.30 | 9 |
| 20 | 〃 | 20 | 7.27 | 1.30 | 11 |
| 35 | 〃 | 35 | 7.42 | 1.33 | 10 |
| 55 | 〃 | 55 | 7.27 | 1.28 | 11 |
| 80 | 23 | 74 | 6.96 | 1.25 | 10 |
| 105 | 〃 | 94 | 7.16 | 1.25 | 10 |
| 130 | 〃 | 120 | 7.26 | 1.40 | 12 |
| 155 | 〃 | 143 | 5.39 | 1.35 | 21 |
| 210 | 〃 | 193 | 2.63 | 1.45 | 40 |
| 370 | 35 | | 1.04 | 2.30 | 59 |
| 490 | 〃 | | 1.09 | 2.33 | 59 |
| 620 | 〃 | | 0.83 | 2.33 | 61 |
| 740 | 〃 | | 0.63 | 2.30 | 65 |
| 990 | 40 | | 1.72 | 2.20 | 46 |
| 1240 | 〃 | | 0.73 | 2.25 | 78 |
| 1480 | 〃 | | 1.23 | 2.28 | 82 |
| 1850 | 〃 | | 0.73 | 2.35 | 90 |

**Station Os 24**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.06 | 1.30 | 9 |
| 10 | 18 | 10 | 7.08 | 1.20 | 8 |
| 20 | 〃 | 19 | 7.16 | 1.18 | 9 |
| 35 | 〃 | 34 | 7.21 | 1.25 | 9 |
| 55 | 〃 | 53 | 7.19 | 1.30 | 10 |
| 80 | 21 | 76 | 6.87 | 1.28 | 9 |
| 105 | 〃 | 99 | 6.85 | 1.35 | 13 |
| 130 | 〃 | 122 | 6.83 | 1.68 | 19 |
| 155 | 〃 | 145 | 3.49 | 2.20 | 39 |
| 210 | 〃 | 196 | 1.77 | 2.18 | 47 |
| 370 | 39 | 298 | 1.12 | 2.20 | 56 |
| 490 | 〃 | 394 | 0.68 | 2.25 | 61 |
| 620 | 〃 | 498 | 0.77 | 2.43 | 67 |
| 740 | 〃 | 594 | 0.74 | 2.28 | 72 |
| 990 | 45 | (805) | 0.73 | 2.23 | 52 |
| 1240 | 〃 | (1008) | 0.61 | 2.30 | 81 |
| 1480 | 〃 | (1205) | 0.08 | 2.28 | 89 |
| 1850 | 〃 | (1510) | 0.10 | 2.30 | 94 |

Table 13. (Continued)

**Station Os 25**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.14 | 1.15 | 24 |
| 10 | 14 | 10 | 7.13 | 1.10 | 23 |
| 20 | 〃 | 19 | 7.30 | 1.13 | 23 |
| 30 | 〃 | 29 | 7.42 | 1.23 | 23 |
| 55 | 〃 | 54 | 7.25 | 1.33 | 24 |
| 80 | 23 | 74 | 7.06 | 1.35 | 24 |
| 105 | 〃 | 94 | 5.60 | 1.38 | 30 |
| 130 | 〃 | 120 | 2.19 | 1.68 | 40 |
| 155 | 〃 | 143 | 1.53 | 2.25 | 53 |
| 210 | 〃 | 193 | 0.87 | 2.25 | 56 |
| 370 | 43 | 288 | 0.55 | 2.28 | 59 |
| 490 | 〃 | 380 | 0.50 | 2.30 | 66 |
| 620 | 〃 | 485 | 0.43 | 2.30 | 76 |
| 740 | 〃 | 585 | 0.44 | 2.35 | 81 |
| 990 | 〃 | 800 | 0.59 | 2.30 | 86 |
| 1240 | 〃 | 1032 | 0.69 | 2.33 | 90 |
| 1480 | 〃 | 1260 | 0.89 | 2.33 | 98 |
| 1850 | 〃 | (1590) | 1.27 | 2.38 | 104 |

**Station Os 26**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.01 | 1.08 | 15 |
| 10 | 10 | 10 | 7.15 | 1.05 | 14 |
| 20 | 〃 | 20 | 7.02 | 1.08 | 15 |
| 35 | 〃 | 35 | 7.36 | 1.10 | 15 |
| 55 | 〃 | 54 | 7.11 | 1.05 | 15 |
| 80 | 14 | 78 | 7.25 | 1.13 | 16 |
| 105 | 〃 | 102 | 5.51 | 1.50 | 26 |
| 130 | 〃 | 126 | 2.92 | 1.75 | 34 |
| 155 | 〃 | 151 | 1.70 | 2.10 | 48 |
| 210 | 〃 | 204 | 1.00 | 2.23 | 57 |
| 370 | 15 | 361 | 0.75 | 2.28 | 65 |
| 490 | 〃 | 478 | 0.63 | 2.25 | 66 |
| 620 | 〃 | 602 | 0.58 | 2.28 | 69 |
| 740 | 〃 | 721 | 0.50 | 2.28 | 78 |
| 990 | 〃 | (964) | 0.66 | 2.25 | 85 |
| 1240 | 〃 | 1207 | 0.74 | 2.30 | 86 |
| 1480 | 〃 | 1439 | 0.52 | 2.25 | 86 |
| 1850 | 〃 | (1800) | 0.87 | 2.30 | 91 |

Table 13. (Continued)

**Station Os 27**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.91 | 0.88 | 4 |
| 10 | 5 | 10 | 7.03 | 0.85 | 4 |
| 20 | 〃 | 20 | 6.89 | 0.85 | 4 |
| 30 | 〃 | 30 | 7.16 | 0.93 | 5 |
| 50 | 〃 | 50 | 6.94 | 1.33 | 5 |
| 80 | 13 | 79 | 6.13 | 1.38 | 7 |
| 105 | 〃 | 103 | 6.71 | 1.50 | 7 |
| 130 | 〃 | 127 | 5.93 | 1.65 | 16 |
| 155 | 〃 | 152 | 4.10 | 1.98 | 32 |
| 210 | 〃 | 205 | 3.37 | 2.15 | 36 |
| 330 | 35 | 259 | 1.99 | 2.25 | 46 |
| 450 | 〃 | 353 | — | 2.38 | 56 |
| 560 | 〃 | 440 | 0.53 | 2.50 | 63 |
| 670 | 〃 | (524) | 0.55 | 2.48 | 67 |
| 890 | 〃 | (694) | 0.64 | 2.50 | 73 |
| 1110 | 〃 | 865 | 0.78 | 2.55 | 75 |
| 1340 | 〃 | (1064) | 0.62 | 2.53 | 77 |
| 1670 | 〃 | (1300) | 0.65 | 2.50 | 84 |

**Station Os 28**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.32 | 1.00 | 13 |
| 10 | 5 | 10 | 7.00 | 0.95 | 12 |
| 20 | 〃 | 20 | 7.11 | 0.98 | 13 |
| 35 | 〃 | 35 | 7.29 | 1.05 | 14 |
| 55 | 〃 | 55 | 6.73 | 1.53 | 19 |
| 80 | 10 | 79 | 6.10 | 1.45 | 20 |
| 105 | 〃 | 103 | 6.04 | 1.65 | 22 |
| 130 | 〃 | 128 | 5.63 | 1.73 | 28 |
| 155 | 〃 | 153 | 5.77 | 1.93 | 30 |
| 210 | 〃 | 207 | 3.91 | 2.03 | 39 |
| 330 | 12 | 301 | 1.86 | 2.03 | 50 |
| 450 | 〃 | (411) | 0.90 | 2.13 | 58 |
| 560 | 〃 | (512) | 0.78 | 2.10 | 65 |
| 670 | 〃 | (615) | 0.69 | 2.25 | 73 |
| 890 | 〃 | 820 | 3.80 | 2.40 | 40 |
| 1110 | 〃 | 1018 | 1.22 | 2.28 | 83 |
| 1340 | 〃 | (1232) | 0.64 | 2.30 | 94 |
| 1670 | 〃 | (1537) | 0.61 | 2.30 | 102 |

Table 13. (Continued)

**Station Os 29**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.97 | 0.33 | 13 |
| 10 | 5 | 10 | 6.89 | 0.35 | 15 |
| 20 | 〃 | 20 | 6.95 | 0.35 | 16 |
| 30 | 〃 | 30 | 7.21 | 0.45 | 15 |
| 50 | 〃 | 50 | 6.90 | 1.05 | 17 |
| 75 | 9 | 75 | 6.67 | 1.18 | 16 |
| 100 | 〃 | 99 | 6.28 | 1.35 | 25 |
| 125 | 〃 | 124 | 5.16 | 1.68 | 31 |
| 150 | 〃 | 149 | 4.12 | 2.13 | 39 |
| 200 | 〃 | 198 | 3.19 | 2.08 | 41 |
| 330 | 21 | (303) | 3.16 | 2.10 | 44 |
| 450 | 〃 | (417) | 1.20 | 2.10 | 58 |
| 560 | 〃 | 518 | 0.78 | 2.13 | 72 |
| 670 | 〃 | 620 | 0.55 | 2.33 | 77 |
| 890 | 〃 | (827) | 0.64 | 2.40 | 85 |
| 1110 | 〃 | 1030 | 0.86 | 2.35 | 89 |
| 1340 | 〃 | (1244) | 0.76 | 2.38 | 99 |
| 1670 | 〃 | (1251) | 0.94 | 2.35 | 106 |

**Station Os 30**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.26 | 0.48 | 10 |
| 10 | 4 | 10 | 7.37 | 0.55 | 11 |
| 20 | 〃 | 20 | 7.14 | 0.63 | 10 |
| 30 | 〃 | 30 | 6.97 | 0.73 | 10 |
| 50 | 〃 | 50 | 6.79 | 1.20 | 15 |
| 75 | 7 | 75 | 6.16 | 1.30 | 17 |
| 100 | 〃 | 99 | 6.10 | 1.55 | 28 |
| 125 | 〃 | 124 | 5.94 | 1.58 | 28 |
| 150 | 〃 | 149 | 5.78 | 1.65 | 30 |
| 200 | 〃 | 199 | 4.32 | 1.95 | 36 |
| 314 | 5 | 309 | 2.48 | 2.05 | 49 |
| 420 | 〃 | 413 | 1.45 | 2.20 | 50 |
| 520 | 〃 | 512 | 0.96 | 2.30 | 59 |
| 630 | 〃 | 620 | 0.80 | 2.35 | 71 |
| 830 | 〃 | (817) | 0.84 | 2.38 | 81 |
| 1040 | 〃 | 1025 | 0.59 | 2.40 | 87 |
| 1250 | 〃 | 1230 | 0.61 | 2.45 | 97 |
| 1560 | 〃 | (1535) | 0.90 | 2.60 | 105 |

Table 13. (Continued)

**Station Os 31**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.91 | 0.23 | 5 |
| 10 | 5 | 10 | 8.17 | 0.20 | 8 |
| 20 | 〃 | 20 | 7.88 | 0.38 | 14 |
| 30 | 〃 | 30 | 7.73 | 1.03 | 15 |
| 50 | 〃 | 50 | 7.12 | 1.18 | 23 |
| 75 | 〃 | 75 | 6.67 | 1.35 | 26 |
| 102 | 〃 | 102 | 6.75 | 1.50 | 26 |

**Station Os 32**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.25 | 0.23 | 2 |
| 10 | 20 | 9 | 7.22 | 0.35 | 5 |
| 20 | 〃 | 18 | 7.40 | 0.45 | 6 |
| 30 | 〃 | 28 | 7.19 | 0.70 | 6 |
| 50 | 〃 | 47 | 6.29 | 1.00 | 6 |
| 80 | 30 | 69 | 6.11 | 1.10 | 7 |
| 105 | 〃 | 92 | 6.38 | 1.10 | 13 |
| 130 | 〃 | 114 | 6.31 | 1.35 | 17 |
| 155 | 〃 | 351 | 6.37 | 1.48 | 20 |
| 210 | 〃 | 182 | 6.04 | 1.55 | 21 |
| 330 | 50 | (192) | 5.97 | 1.58 | 22 |
| 450 | 〃 | 260 | 4.75 | 2.10 | 31 |
| 560 | 〃 | 330 | 2.79 | 2.15 | 44 |
| 670 | 〃 | 390 | 1.88 | 2.20 | 51 |
| 890 | 〃 | (515) | 1.18 | 2.20 | 49 |
| 1110 | 〃 | (640) | 1.00 | 2.25 | 63 |
| 1340 | 〃 | (773) | 0.72 | 2.25 | 72 |
| 1670 | 〃 | (968) | 0.62 | 2.33 | 81 |

Table 13. (Continued)

**Station Os 33**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.19 | 0.13 | 0 |
| 10 | 22 | 9 | 7.24 | 0.15 | 4 |
| 15 | 23 | 14 | 7.34 | 0.25 | 0 |
| 20 | 22 | 18 | 9.11 | 0.53 | 9 |
| 25 | 23 | 23 | 8.80 | 0.65 | 0 |
| 30 | 22 | 28 | 7.55 | 0.88 | 12 |
| 50 | 〃 | 46 | 7.32 | 1.33 | 16 |
| 75 | 〃 | 70 | 6.48 | 1.30 | 21 |
| 100 | 〃 | 93 | 6.53 | 1.45 | 22 |
| 118 | 〃 | 109 | 6.58 | 1.60 | 22 |

**Station Os 34**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.03 | 0.35 | 0 |
| 10 | 18 | 10 | 7.22 | 0.40 | 0 |
| 20 | 〃 | 19 | 9.88 | 0.48 | 0 |
| 30 | 〃 | 29 | 7.39 | 1.40 | 14 |
| 50 | 〃 | 48 | 7.26 | 1.73 | 16 |
| 73 | 〃 | 69 | 6.92 | 1.65 | 18 |

**Station Os 35**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.02 | 0.55 | 0 |
| 10 | 5 | 10 | 6.85 | 0.63 | 0 |
| 20 | 〃 | 20 | 8.73 | 0.48 | 0 |
| 30 | 〃 | 30 | 7.18 | 1.10 | 3 |
| 50 | 〃 | 50 | 7.24 | 1.40 | 6 |

Table 13. (Continued)

**Station Os 36**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.13 | 0.13 | 0 |
| 10 | 7 | 10 | 7.13 | 0.18 | 0 |
| 15 | 10 | 15 | 6.90 | 0.18 | 0 |
| 20 | 7 | 20 | 8.20 | 0.35 | 0 |
| 30 | 〃 | 30 | 7.89 | 0.65 | 0 |
| 50 | 〃 | 50 | 7.71 | 0.65 | 0 |

**Station Os 37**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.60 | 0.08 | 0 |
| 10 | 7 | 10 | 7.85 | 0 | 0 |
| 15 | 〃 | 15 | 8.22 | 0 | 0 |
| 20 | 〃 | 20 | 8.32 | 0 | 0 |
| 30 | 〃 | 30 | 8.15 | 0.18 | 0 |
| 45 | 〃 | 45 | 8.14 | 0.20 | 0 |

**Station Os 38**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.81 | 0 | 0 |
| 10 | 6 | 10 | 7.92 | 0 | 0 |
| 15 | 〃 | 15 | 7.92 | 0 | 0 |
| 20 | 〃 | 20 | 8.18 | 0 | 0 |
| 30 | 〃 | 30 | — | 0 | 0 |
| 40 | 〃 | 40 | 7.97 | 0 | 0 |

**Station Os 39**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.40 | 0 | 0 |
| 5 | 3 | 5 | 7.47 | 0 | 0 |
| 10 | 〃 | 10 | 7.87 | 0 | 0 |
| 15 | 〃 | 15 | 7.87 | 0 | 0 |
| 20 | 〃 | 20 | 7.71 | 0 | 0 |
| 30 | 〃 | 30 | 7.79 | 0 | 0 |
| 45 | 〃 | 45 | 7.33 | 0.05 | 0 |

Table 13. (Continued)

**Station Os 40**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.09 | 0 | 0 |
| 5 | 0 | 5 | 7.61 | 0 | 0 |
| 10 | 〃 | 10 | 7.59 | 0 | 0 |
| 20 | 〃 | 20 | 7.49 | 0 | 0 |
| 30 | 〃 | 30 | 7.31 | 0 | 0 |
| 45 | 〃 | 45 | 7.53 | 0 | 0 |

**Station Os 41**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.23 | 0 | 0 |
| 5 | 0 | 5 | 7.37 | 0 | 0 |
| 10 | 〃 | 10 | 7.33 | 0 | 0 |
| 20 | 〃 | 20 | 7.24 | 0 | 0 |
| 30 | 〃 | 30 | 7.26 | 0 | 0 |
| 35 | 〃 | 35 | 6.90 | 0 | 0 |

**Station Os 42**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.37 | 0 | 0 |
| 5 | 0 | 5 | 7.81 | 0 | 0 |
| 10 | 2 | 10 | 8.26 | 0 | 0 |
| 15 | 〃 | 15 | 8.31 | 0 | 0 |
| 20 | 〃 | 20 | 7.71 | 0 | 0 |
| 25 | 0 | 25 | 7.12 | 0.23 | 0 |
| 30 | 2 | 30 | 6.74 | 0.75 | 2 |
| 50 | 〃 | 50 | 5.39 | 0.80 | 5 |
| 65 | 〃 | 65 | 6.69 | 0.78 | 8 |

Table 13. (Continued)

**Station Os 43**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.36 | 0.75 | 7 |
| 10 | 0 | 10 | 7.19 | 0.37 | 6 |
| 20 | 〃 | 20 | 7.14 | 0.15 | 5 |
| 30 | 〃 | 30 | 7.20 | 0.28 | 7 |
| 50 | 〃 | 50 | 6.33 | 1.33 | 23 |
| 65 | 〃 | 65 | 6.20 | 1.35 | 23 |
| 80 | 〃 | 80 | 6.46 | 1.38 | 23 |

**Station Os 44**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.77 | 0.70 | 8 |
| 10 | 17 | 10 | 7.82 | 0.40 | 5 |
| 20 | 〃 | 19 | 7.27 | 0.63 | 13 |
| 30 | 〃 | 28 | 6.86 | 0.60 | 11 |
| 50 | 〃 | 48 | 6.76 | 0.78 | 12 |
| 75 | 〃 | 72 | 6.61 | 1.00 | 19 |
| 100 | 〃 | | 6.02 | 1.55 | 32 |

**Station Os 45**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.80 | 0.25 | 0 |
| 10 | 7 | 10 | 6.98 | 0.25 | 0 |
| 20 | 〃 | 20 | 7.23 | 0.25 | 0 |
| 30 | 〃 | 30 | 7.17 | 0.43 | 5 |
| 50 | 〃 | 50 | 7.31 | 0.90 | 11 |
| 75 | 〃 | 75 | 6.10 | 0.88 | 16 |
| 100 | 〃 | 99 | 5.97 | 1.15 | 24 |

Table 13. (Continued)

**Station Os 46**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.99 | 0.55 | 0 |
| 10 | 0 | 10 | 7.51 | 0.50 | 3 |
| 20 | 〃 | 20 | 7.25 | 0.68 | 4 |
| 30 | 〃 | 30 | 6.70 | 0.90 | 5 |
| 50 | 〃 | 50 | 6.55 | 0.93 | 6 |
| 75 | 17 | 72 | 6.12 | 0.95 | 16 |
| 100 | 〃 | 96 | 5.88 | 1.05 | 17 |
| 125 | 〃 | 120 | 5.81 | 1.15 | 25 |
| 150 | 〃 | 144 | 4.73 | 1.40 | 25 |
| 200 | 〃 | 170 | 3.73 | 1.40 | 33 |
| 250 | 〃 | 197 | 3.09 | 1.85 | 46 |

**Station Os 47**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.25 | 0.95 | 1 |
| 10 | 6 | 10 | 6.21 | 1.00 | 3 |
| 20 | 〃 | 20 | 6.70 | 1.05 | 5 |
| 30 | 〃 | 30 | 7.01 | 1.05 | 5 |
| 50 | 〃 | 50 | 7.10 | 1.10 | 6 |
| 80 | 7 | 80 | 6.47 | 1.13 | 11 |
| 105 | 〃 | 104 | 5.12 | 1.45 | 28 |
| 130 | 〃 | 129 | 4.34 | 1.68 | 44 |
| 155 | 〃 | 154 | 2.26 | 2.10 | 52 |
| 210 | 〃 | 209 | 1.62 | 2.20 | 57 |
| 310 | 0 | 305 | 0.50 | 2.45 | 66 |
| 420 | 〃 | (414) | 0.83 | 2.40 | 71 |
| 520 | 〃 | 513 | 0.51 | 2.43 | 75 |
| 630 | 〃 | 622 | 0.38 | 2.45 | 84 |
| 830 | 〃 | 818 | 0.37 | 2.48 | 94 |
| 1040 | 〃 | 1024 | 0.44 | 2.43 | 96 |
| 1250 | 〃 | | 0.59 | 2.45 | 99 |
| 1560 | 〃 | | 0.55 | 2.45 | 101 |

Table 13. (Continued)

**Station Os 48**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.25 | 0.95 | 2 |
| 10 | 7 | 10 | 6.32 | 0.93 | 1 |
| 20 | 〃 | 20 | 6.67 | 0.95 | 1 |
| 30 | 〃 | 30 | 6.86 | 0.95 | 2 |
| 50 | 〃 | 50 | 7.12 | 1.03 | 3 |
| 80 | 6 | 80 | 5.17 | 1.13 | 14 |
| 105 | 〃 | 104 | 3.87 | 1.75 | 40 |
| 130 | 〃 | 129 | 2.21 | 1.95 | 45 |
| 155 | 〃 | 154 | 1.55 | 2.15 | 54 |
| 210 | 〃 | 209 | 0.88 | 2.20 | 59 |
| 300 | 20 | 267 | 1.13 | 2.20 | 64 |
| 400 | 〃 | 355 | 0.53 | 2.23 | 68 |
| 500 | 〃 | 444 | 0.43 | 2.28 | 71 |
| 600 | 〃 | | 0.41 | 2.25 | 79 |
| 800 | 18 | | 0.40 | 2.25 | 91 |
| 1010 | 20 | | 0.44 | 2.25 | 96 |
| 1210 | 〃 | | 0.55 | 2.23 | 105 |
| 1510 | 〃 | | 0.91 | 2.28 | 91 |

**Station Os 49**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.44 | 0.90 | 2 |
| 10 | 12 | 10 | 7.31 | 0.88 | 2 |
| 20 | 〃 | 19 | 7.51 | 0.88 | 2 |
| 30 | 〃 | 29 | 6.79 | 0.90 | 3 |
| 50 | 〃 | 49 | 7.26 | 1.20 | 8 |
| 75 | 28 | 67 | 6.47 | 1.23 | 14 |
| 100 | 〃 | 88 | 5.99 | 1.40 | 20 |
| 125 | 〃 | 110 | 3.16 | 2.10 | 40 |
| 150 | 〃 | 132 | 2.18 | 2.23 | 45 |
| 200 | 〃 | 177 | 1.44 | 2.23 | 57 |
| 330 | 40 | (250) | 0.91 | 2.23 | 62 |
| 450 | 〃 | 353 | 0.83 | 2.20 | 68 |
| 560 | 〃 | | 0.47 | 2.20 | 74 |
| 670 | 〃 | | 0.41 | 2.20 | 81 |
| 890 | 〃 | | 0.43 | 2.18 | 87 |
| 1110 | 〃 | | 0.47 | 2.20 | 91 |
| 1340 | 〃 | | 0.43 | 2.18 | 84 |
| 1670 | 〃 | | 0.88 | 2.23 | 105 |

Table 13. (Continued)

**Station Os 50**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.30 | 1.00 | 3 |
| 10 | 19 | 10 | 6.41 | 0.95 | 3 |
| 20 | 〃 | 19 | 7.19 | 0.93 | 3 |
| 30 | 〃 | 29 | 7.04 | 0.95 | 5 |
| 50 | 〃 | 48 | 6.56 | 1.13 | 17 |
| 85 | 30 | 75 | 5.56 | 1.20 | 22 |
| 110 | 〃 | 91 | 4.20 | 1.50 | 34 |
| 140 | 〃 | 123 | 3.45 | 1.78 | 42 |
| 165 | 〃 | 144 | 2.88 | 1.78 | 49 |
| 220 | 〃 | 191 | 2.05 | 2.05 | 51 |
| 330 | 58 | | 1.82 | 2.10 | 58 |
| 450 | 〃 | | — | — | — |
| 560 | 〃 | (295) | 1.21 | 2.05 | 65 |
| 670 | 〃 | (355) | 0.57 | 2.10 | 71 |
| 890 | 〃 | 477 | 0.44 | 2.13 | 85 |
| 1110 | 〃 | | 0.53 | 2.15 | 90 |
| 1340 | 〃 | | 0.46 | 2.15 | 94 |
| 1670 | 〃 | | — | — | — |

**Station Os 51**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.36 | 1.05 | 8 |
| 10 | 14 | 10 | 6.40 | 1.08 | 8 |
| 20 | 〃 | 19 | 7.19 | 1.10 | 9 |
| 35 | 〃 | 34 | 7.24 | 1.20 | 11 |
| 55 | 〃 | 54 | 6.05 | 1.45 | 24 |
| 85 | 26 | 77 | 5.88 | 1.50 | 27 |
| 110 | 〃 | 99 | 4.01 | 1.90 | 38 |
| 140 | 〃 | 126 | 3.03 | 1.90 | 41 |
| 165 | 〃 | 149 | 2.73 | 2.15 | 44 |
| 220 | 〃 | 200 | 1.62 | 2.13 | 45 |
| 330 | 52 | 217 | 2.60 | 2.18 | 46 |
| 450 | 〃 | 280 | 1.66 | 2.20 | 50 |
| 560 | 〃 | 420 | 1.22 | 2.23 | 53 |
| 670 | 〃 | 580 | 1.07 | 2.23 | 64 |
| 890 | 〃 | 750 | 0.52 | 2.25 | 76 |
| 1110 | 〃 | (1020) | 0.49 | 2.23 | 83 |
| 1340 | 〃 | | 0.38 | 2.28 | 92 |
| 1670 | 〃 | | 0.43 | 2.30 | 99 |

Table 13. (Continued)

**Station Os 52**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphaet-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.19 | 0.60 | 11 |
| 10 | 11 | 10 | 6.29 | 0.67 | 15 |
| 20 | 〃 | 20 | 6.70 | 0.82 | 15 |
| 30 | 〃 | 30 | 7.05 | 0.90 | 16 |
| 50 | 〃 | 49 | 7.11 | 1.20 | 19 |
| 80 | 17 | 78 | 6.47 | 1.40 | 23 |
| 105 | 〃 | 101 | 7.02 | 1.50 | 25 |
| 130 | 〃 | 126 | 6.22 | 1.55 | 29 |
| 155 | 〃 | 149 | 4.87 | 1.65 | 34 |
| 210 | 〃 | 201 | 3.57 | 2.20 | 44 |
| 330 | 25 | 295 | 2.67 | 2.22 | 54 |
| 450 | 〃 | 405 | 1.65 | 2.38 | 61 |
| 560 | 〃 | 503 | 1.60 | 2.40 | 73 |
| 670 | 35 | 1000 | 0.77 | 2.55 | 83 |
| 890 | 25 | 792 | 0.60 | 2.65 | 87 |
| 1110 | 35 | (1205) | 0.49 | 2.60 | 93 |
| 1340 | 〃 | (1492) | 0.54 | 2.65 | 99 |
| 1670 | 〃 | | 0.63 | 2.73 | 110 |

**Station Os 53**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 5.85 | 0.55 | 9 |
| 10 | 3 | 10 | 5.90 | 0.65 | 9 |
| 20 | 〃 | 20 | 6.04 | 0.65 | 10 |
| 30 | 〃 | 30 | 6.07 | 0.68 | 10 |
| 50 | 〃 | 50 | 6.63 | 0.75 | 11 |
| 75 | 4 | 75 | 5.88 | 1.18 | 13 |
| 100 | 〃 | 100 | 6.44 | 1.18 | 22 |
| 125 | 〃 | 125 | 6.39 | 1.30 | 23 |
| 150 | 〃 | 150 | 6.37 | 1.13 | 24 |
| 200 | 〃 | 200 | 5.99 | 1.28 | 26 |
| 310 | 17 | 299 | 4.20 | 1.90 | 43 |
| 420 | 〃 | 404 | 2.91 | 1.98 | 53 |
| 520 | 〃 | 504 | 2.42 | 2.25 | 75 |
| 630 | 〃 | 605 | 1.58 | 2.38 | 80 |
| 830 | 〃 | 797 | 0.94 | 2.40 | 85 |
| 1040 | 〃 | — | 2.19 | 2.48 | 69 |
| 1250 | 〃 | (1200) | 0.58 | 2.55 | 95 |
| 1560 | 〃 | (1500) | 0.57 | 2.63 | 106 |

Table 13. (Continued)

**Station Os 54**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 5.91 | 0.35 | 14 |
| 10 | 15 | 10 | 5.82 | 0.38 | 14 |
| 20 | 〃 | 19 | 7.56 | 0.38 | 13 |
| 30 | 〃 | 29 | 5.73 | 0.40 | 12 |
| 50 | 〃 | 49 | 5.96 | 0.40 | 12 |
| 80 | 25 | 76 | 5.50 | 0.45 | 12 |
| 105 | 〃 | 95 | 5.88 | 0.53 | 12 |
| 130 | 〃 | 117 | 5.53 | 0.73 | 11 |
| 155 | 〃 | 141 | 5.53 | 0.70 | 12 |
| 210 | 〃 | 189 | 5.22 | 0.93 | 15 |
| 330 | 45 | 258 | 5.17 | 1.25 | 21 |
| 450 | 〃 | 330 | 3.66 | 1.40 | 29 |
| 560 | 〃 | 410 | 2.86 | 1.85 | 41 |
| 670 | 48 | 453 | 2.75 | 1.78 | 50 |
| 890 | 〃 | 623 | 1.60 | 2.28 | 68 |
| 1110 | 〃 | 806 | 0.90 | 2.38 | 76 |
| 1340 | 〃 | 1010 | 0.76 | 2.45 | 85 |
| 1670 | 〃 | 1367 | 0.73 | 2.45 | 92 |

## 8. Data on Radic-Activity on Natural Sea Water
（自然海水放射能記録）

Sample water as much as 5 liters was dipped with a plastic bucket near the bow from the sea surface at 10 stations, and stored in plastic bottles to take back to the University.

The method employed for activity measurement was based on "Japan Fisheries Agency, Division of Research: Report on the studies on the influence of nuclear explosion test in the Bikini area. No. 1, p. 17 (1955)".

Aloka DC-p 3 MC Type Radiation Counter made by Nihon-Musen Irigaku Kenkyusho was used.

Counting was made by H. Kawahara, in the Chemical Laboratory of the Faculty of Fisheries, Hokkaido University.

The authors wishes to thank the Hokkaido Prefectural Office for financial aid.

Table 14. Data on radio-activity of natural sea water in the "Oshoro Maru" cruise 46 to Bering Sea and North Pacific in June–August 1960

| No. of sample | Corresponding hydrographic station | Position | Time of sampling | | Analytical result of sample water | | | | | Radio-activity of sample water (Mean background: 19.8 cpm) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Ship's date | Ship's hour | Cl/ml | $d^{20}$ | Chlorinity | Chlorosity | Salinity | Raw count (cpm) | Net count (cpm) |
| 1 | Os 2 | 47°10′N 161°16′E | June 11 | 1920 | 0.018378 | 1.02331 | 17.9594 | 18.378 | 32.442 | 21.6 | 1.8 |
| 2 | 6 | 50°00′N 170°00′E | 14 | 1040 | 0.018292 | 1.02337 | 17.8743 | 18.292 | 32.293 | 20.9 | 1.1 |
| 3 | 9 | 55°00′N 170°30′E | 16 | 2000 | 0.018378 | 1.02346 | 17.9567 | 18.378 | 32.441 | 21.0 | 1.2 |
| 4 | 11 | 57°00′N 175°03′E | 18 | 1440 | 0.018469 | 1.02341 | 18.0465 | 18.469 | 32.604 | 22.2 | 2.4 |
| 5 | 17 | 52°54′N 178°54′W | 22 | 1700 | 0.018471 | 1.02367 | 18.0439 | 18.471 | 32.599 | 21.0 | 1.2 |
| 6 | 24 | 48°22′N 172°00′W | 26 | 1345 | 0.018315 | 1.02305 | 17.9024 | 18.315 | 32.344 | 20.1 | 0.3 |
| 7 | 28 | 53°31′N 171°58′W | 28 | 1045 | 0.018295 | 1.02343 | 17.8762 | 18.295 | 32.297 | 21.0 | 1.2 |
| 8 | 34 | 61°01′N 173°24′W | July 6 | 1210 | 0.017453 | 1.02229 | 17.0725 | 17.453 | 30.846 | 21.0 | 1.2 |
| 9 | 41 | 57°46′N 162°01′W | 12 | 2000 | 0.017630 | 1.02224 | 17.2464 | 17.630 | 31.160 | 21.4 | 1.6 |
| 10 | 51 | 56°52′N 145°22′W | 19 | 0900 | 0.018128 | 1.02313 | 17.7182 | 18.128 | 32.048 | 20.2 | 0.4 |

## 9. Data on Marine Bacteria
(海洋細菌記録)

Water samples were collected with modified J-Z bacterial sampler (ZoBell, C.E., 1941, Jour. Mar. Res., Vol. 4, No. 3, pp. 173–188) normally from approximately 10, 20, 30, 50, 75, 100, 150, 200, 500, 750, 1000 and 1500 meter depths at 35 hydrographic stations. Surface water was dipped with a sterilized polyethylen bottle.

From these sample waters, aliquots as much as 0.01 cc, 0.1 cc and 1cc of water, were inoculated into 10 cc of agar media (2216E; Morita, R.Y. and ZoBell, C.E., 1955. Deep-Sea Res., Vol. 3, pp. 66–73) in Petri's dishes. After placing these media in an incubator kept at 25°C for 6 days, the number of bacterial colonies developed in culture media was counted by means of a colony counter. The results of counting indicated that the number of bacterial colonies after a 6 day culture was

extraordinarily small compared with the results of cruise 44 to the Bering Sea in 1959 (*Data Rec. Oceanogr. Obs. Expl. Fish.*, No. 4, p. 53, 1960). Further studies to obtain M. P. N. (most probable number) was impossible on board because of insufficient facilities, so that in this *Data Record*, the number of bacterial colonies is not presented. The reason of discrepancy of the bacterial number between cruise 44 and cruise 46 is not clear.

Then culture media in dishes were stored in a refrigerator kept at 0°~5°C to take back to the University. They are to be put on the isolation of strains.

In addition to the above inoculation for counting of colonies, sample waters have been inoculated directely into the following various media:

1) For reducers of sulfate

| | |
|---|---|
| Pepton | 5g |
| Yeast extract | 1g |
| $FePO_4$ | 0.1g |
| Ca-lactate | 3.5g |
| L-ascorbic acid | 0.1g |
| $MgSO_4 \cdot 7H_2O$ | 0.2g |
| $FeSO_4 \cdot 7H_2O$ | 0.2g |
| Artificial sea water | 1000cc |

2) For reducers of nitrate

| | |
|---|---|
| Pepton | 5g |
| Yeast extract | 1g |
| $KNO_3$ | 1g |
| $FePO_4$ | 0.1g |
| Artificial sea water | 1000cc |

3) For ammonifiers and producers of hydrogen sulfide

| | |
|---|---|
| Pepton | 5g |
| Yeast extract | 1g |
| $FePO_4$ | 0.1g |
| $KH_2PO_4$ | 0.05g |
| Artificial sea water | 1000cc |

4) For hydrolyzers of starch

| | |
|---|---|
| Pepton | 5g |
| Yeast extract | 1g |
| $FePO_4$ | 0.1g |
| Starch | 10g |
| Agar | 13g |
| Artificial sea water | 1000cc |

5) For hydrolyzers of alginate

| | |
|---|---|
| Pepton | 5g |
| Yeast extract | 1g |
| $FePO_4$ | 0.1g |
| Na-Alginate | 7.5g |
| Agar | 13g |
| Artificial sea water | 1000cc |

Presence or absence of these bacteria is given in Table 15, except alginate hydrolyzer which was not recognized in all sample waters.

The samplings, inoculation and counting aboard were made by M. Sakai and T. Kimura.

Table 15. Data on physiological reactions of the mixed bacterial flora in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

**Station Os 1**

Position 46°42′N 159°55′E Date, hour (ship's time) June 11, 0830–1125

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | + | ++ | + | ++ |
| 10 | 19 | 9 | + | ± | + | + | + |
| 20 | 〃 | 19 | + | − | + | ++ | + |
| 30 | 〃 | 28 | − | − | − | − | − |
| 50 | 〃 | 47 | − | − | − | − | − |
| 75 | 〃 | 71 | − | − | − | − | − |
| 100 | 7 | 99 | − | − | − | − | − |
| 150 | 19 | 142 | − | − | − | − | − |
| 510 | 〃 | | − | − | + | − | − |
| 780 | 〃 | | − | − | − | − | − |
| 1540 | 〃 | | − | − | − | − | − |

**Station Os 4**

Position 48°38′N 165°58′E Date, hour (ship's time) June 13, 0833–1045

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | ± | ± | − | ± | ± |
| 10 | 43 | 7 | − | − | − | − | − |
| 25 | 〃 | 17 | − | − | − | − | − |
| 35 | 〃 | 24 | − | − | − | − | − |
| 60 | 〃 | 41 | − | − | − | − | − |
| 95 | 〃 | 65 | − | − | − | − | − |
| 125 | 〃 | 86 | − | − | − | − | − |
| 185 | 〃 | 127 | − | − | − | − | − |
| 610 | 〃 | 397 | − | − | − | − | − |
| 925 | 〃 | (650) | − | + | − | − | − |
| 1230 | 〃 | (815) | − | − | − | − | − |

Table 15. (Continued)

**Station Os 6**

Position 50°00′N 170°00′E Date, hour (ship's time) June 14, 1950–2140

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | ± | + | ++ | + | ++ |
| 25 | 50 | 18 | − | − | − | − | − |
| 35 | 〃 | 25 | − | − | − | − | − |
| 60 | 〃 | 42 | − | − | − | − | − |
| 95 | 〃 | 67 | − | − | − | ± | − |
| 125 | 〃 | 88 | − | − | − | − | − |
| 185 | 〃 | 130 | − | − | − | − | − |
| 250 | 〃 | 176 | − | − | − | − | − |
| 610 | 〃 | 431 | ± | − | ++ | − | − |
| 925 | 〃 | (656) | ± | − | − | + | − |
| 1230 | 〃 | 873 | ± | − | ++ | − | − |
| 1840 | 〃 | | − | − | − | − | − |

**Station Os 8**

Position 53°44′N 170°10′E Date, hour (ship's time) June 16, 0834–1000

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | + | ++ | ± | ++ |
| 10 | 10 | 10 | − | − | − | − | − |
| 20 | 〃 | 19 | − | − | − | − | − |
| 30 | 〃 | 29 | − | − | − | − | − |
| 50 | 〃 | 48 | − | − | − | − | − |
| 80 | 〃 | 77 | − | − | − | − | − |
| 105 | 〃 | 101 | − | − | ++ | − | − |
| 155 | 〃 | 150 | − | − | − | − | − |
| 210 | 〃 | 203 | − | − | − | − | − |
| 510 | 〃 | 490 | − | − | − | − | − |
| 780 | 〃 | (747) | − | − | − | − | − |
| 1030 | 〃 | (984) | − | − | − | − | − |
| 1550 | 〃 | 1475 | − | − | − | − | − |

Table 15. (Continued)

**Station Os 11**

Position 57°00′N 175°03′E Date, hour (ship's time) June 18, 1345–1530

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | − | − |
| 10 | 25 | 9 | − | − | − | − | − |
| 20 | 〃 | 19 | − | − | − | − | − |
| 35 | 〃 | 33 | − | − | − | − | − |
| 55 | 〃 | 51 | − | − | − | − | − |
| 85 | 〃 | 79 | − | − | − | − | − |
| 110 | 〃 | 102 | − | − | − | − | − |
| 165 | 〃 | 153 | − | − | − | − | − |
| 220 | 〃 | 205 | − | − | − | − | − |
| 550 | 〃 | 510 | − | − | − | − | − |
| 835 | 〃 | (776) | − | − | − | − | − |
| 1100 | 〃 | 1023 | − | − | − | − | − |
| 1660 | 〃 | | − | − | − | − | − |

**Station Os 13**

Position 53°00′N 175°05′E Date, hour (ship's time) June 20, 1903–2035

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | ++ | − | + | ++ |
| 10 | 24 | 9 | − | − | − | − | − |
| 20 | 〃 | 18 | − | − | − | − | − |
| 30 | 〃 | 28 | − | − | ± | − | − |
| 50 | 〃 | 46 | − | − | − | − | − |
| 75 | 〃 | 69 | − | − | − | − | − |
| 100 | 〃 | 92 | − | − | − | − | − |
| 150 | 〃 | 138 | + | − | − | − | − |
| 200 | 〃 | 183 | − | − | − | − | − |
| 490 | 〃 | 450 | + | − | ++ | − | − |
| 750 | 〃 | (696) | − | − | − | − | − |
| 1000 | 〃 | 933 | − | − | − | − | − |
| 1500 | 〃 | | − | − | − | − | − |

Table 15. (Continued)

**Station Os 15**

Position 52°40′N 179°48′W Date, hour (ship's time) June 21, 0836-1005

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | ± | ± | ++ | + | ++ |
| 10 | 52 | 6 | ++ | ± | ++ | ± | + |
| 20 | 〃 | 12 | ± | ± | ++ | − | − |
| 30 | 〃 | 18 | − | − | − | ± | − |
| 50 | 〃 | 31 | ++ | + | ± | − | ± |
| 80 | 〃 | 49 | − | − | − | − | − |
| 105 | 〃 | 65 | − | ± | − | − | ++ |
| 155 | 〃 | 65 | − | − | ++ | ± | ++ |
| 210 | 〃 | 130 | + | ± | ± | + | + |
| 570 | 〃 | (172) | − | + | + | ± | + |
| 810 | 〃 | (217) | − | ± | − | − | − |
| 1140 | 〃 | (345) | − | − | ++ | − | − |

**Station Os 19**

Position 49°58′N 179°32′W Date, hour (ship's time) June 24, 0414-0616

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | ++ | ± | − |
| 10 | 22 | 9 | − | − | − | − | − |
| 20 | 〃 | 18 | − | − | − | − | − |
| 30 | 〃 | 27 | − | − | − | − | − |
| 50 | 〃 | 45 | − | − | − | − | − |
| 80 | 〃 | 72 | − | − | − | − | − |
| 105 | 〃 | 95 | − | − | − | − | − |
| 155 | 〃 | 140 | − | − | − | − | − |
| 210 | 〃 | 189 | − | − | ++ | − | − |
| 510 | 〃 | 461 | − | − | ++ | − | − |
| 780 | 〃 | (707) | − | − | − | − | − |
| 1030 | 〃 | 935 | − | − | + | − | − |
| 1550 | 〃 | (1400) | − | − | − | − | − |

Table 15. (Continued)

**Station Os 22**

Position 48°19′N 176°45′W Date, hour (ship's time) June 25, 0933–1047

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | ++ | − | ++ | − | − |
| 10 | 35 | 8 | ++ | − | ++ | ± | ± |
| 20 | 〃 | 16 | − | − | − | − | − |
| 35 | 〃 | 29 | − | − | − | − | − |
| 55 | 〃 | 45 | − | − | − | − | − |
| 85 | 〃 | 70 | − | − | − | − | − |
| 110 | 〃 | 90 | − | − | − | − | − |
| 165 | 〃 | 135 | − | − | − | − | − |
| 220 | 〃 | 180 | ++ | − | ++ | − | − |
| 550 | 40 | | − | − | − | − | − |
| 835 | 35 | | − | − | − | − | − |
| 1100 | 〃 | | − | − | + | − | − |
| 1660 | 〃 | | − | − | − | − | − |

**Station Os 24**

Position 48°22′N 172°00′W Date, hour (ship's time) June 26, 1315–1530

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | ± | ++ | ++ | − | − |
| 10 | 39 | 8 | + | + | − | ± | − |
| 25 | 〃 | 20 | − | − | − | − | − |
| 35 | 〃 | 28 | − | − | − | − | − |
| 60 | 〃 | 48 | − | − | − | − | − |
| 95 | 〃 | 77 | − | − | − | − | − |
| 125 | 〃 | 101 | − | − | − | − | − |
| 185 | 〃 | 149 | − | − | − | − | − |
| 250 | 〃 | 201 | − | − | ++ | + | − |
| 610 | 〃 | 488 | − | − | − | − | − |
| 925 | 45 | (747) | − | − | ++ | − | − |
| 1230 | 〃 | 998 | − | − | − | − | − |
| 1840 | 〃 | 1500 | − | − | − | − | − |

Table 15. (Continued)

**Station Os 25**

Position 48°59′N 171°57′W Date, hour (ship's time) June 26, 2027-2200

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | ± | − |
| 10 | 43 | 9 | ± | ++ | ++ | − | − |
| 25 | 〃 | 20 | − | − | − | − | − |
| 35 | 〃 | 27 | − | − | − | − | − |
| 60 | 〃 | 47 | − | − | − | − | − |
| 95 | 〃 | 74 | − | − | − | − | − |
| 125 | 〃 | 97 | ± | + | − | + | − |
| 185 | 〃 | 144 | − | − | ++ | − | − |
| 250 | 〃 | 195 | − | − | − | − | − |
| 610 | 〃 | 475 | − | − | ++ | − | − |
| 925 | 〃 | (753) | − | − | − | − | − |
| 1230 | 〃 | 1022 | − | − | − | − | − |
| 1840 | 〃 | (1580) | − | − | − | − | − |

**Station Os 27**

Position 51°16′N 171°56′W Date, hour (ship's time) June 27, 1605-1820

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | − | − |
| 10 | 35 | 8 | − | − | − | + | − |
| 20 | 〃 | 16 | − | − | − | − | − |
| 35 | 〃 | 28 | − | − | − | − | − |
| 55 | 〃 | 43 | − | − | − | − | − |
| 85 | 〃 | 67 | − | − | − | − | − |
| 110 | 〃 | 86 | − | − | − | − | − |
| 165 | 〃 | 130 | ± | − | − | − | + |
| 220 | 〃 | 173 | − | − | − | ± | − |
| 550 | 〃 | 430 | − | − | − | − | − |
| 835 | 〃 | (650) | − | − | − | − | − |
| 1100 | 〃 | 855 | − | − | − | − | − |
| 1660 | 〃 | (1290) | − | − | − | − | − |

Table 15. (Continued)

**Station Os 28**

Position 53°31′N 171°58′W Date, hour (ship's time) June 28, 0833–0955

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | − | − |
| 10 | 12 | 9 | − | − | − | − | − |
| 20 | 〃 | 18 | − | − | − | − | − |
| 35 | 〃 | 32 | − | − | − | − | − |
| 55 | 〃 | 50 | − | − | − | − | − |
| 85 | 〃 | 78 | − | − | − | − | − |
| 110 | 〃 | 100 | − | − | − | − | − |
| 165 | 〃 | 151 | − | − | − | − | − |
| 220 | 〃 | 201 | − | − | − | − | − |
| 550 | 〃 | 502 | − | − | − | − | − |
| 835 | 〃 | (764) | − | − | − | − | − |
| 1100 | 〃 | 1008 | − | − | − | − | − |
| 1660 | 〃 | (1527) | − | − | − | − | − |

**Station Os 29**

Position 55°30′N 171°52′W Date, hour (ship's time) June 29, 1510–1643

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | ++ | ++ | − | − | + |
| 10 | 21 | 9 | + | − | + | ± | − |
| 20 | 〃 | 18 | − | − | − | − | − |
| 35 | 〃 | 32 | − | − | − | − | − |
| 55 | 〃 | 51 | − | − | − | − | − |
| 85 | 〃 | 78 | − | − | − | − | − |
| 110 | 〃 | 101 | − | − | − | + | − |
| 165 | 〃 | 152 | − | − | − | − | − |
| 220 | 〃 | 202 | − | − | − | − | − |
| 550 | 〃 | 508 | − | − | − | − | − |
| 835 | 〃 | (773) | − | − | − | − | − |
| 1100 | 〃 | 1020 | − | − | − | − | − |
| 1660 | 〃 | (1541) | − | − | − | − | − |

Table 15. (Continued)

**Station Os 30**

Position 56°00′N 171°44′W Date, hour (ship's time) June 30, 1500–1617

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | – | – | – | – | – |
| 10 | 5 | 10 | – | – | – | – | – |
| 20 | 〃 | 20 | – | – | – | – | – |
| 30 | 〃 | 30 | – | – | – | – | – |
| 50 | 〃 | 49 | – | – | – | – | – |
| 80 | 〃 | 79 | – | – | – | – | – |
| 105 | 〃 | 103 | – | – | – | – | – |
| 155 | 〃 | 153 | – | – | – | – | – |
| 210 | 〃 | 207 | – | – | – | – | – |
| 510 | 〃 | 502 | – | – | – | – | – |
| 780 | 〃 | (768) | – | – | – | – | – |
| 1030 | 〃 | 1015 | – | – | – | – | – |
| 1550 | 〃 | (1525) | – | – | ++ | – | – |

**Station Os 31**

Position 57°40′N 171°50′W Date, hour (ship's time) July 1, 1620–1710

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | – | – | – | – | – |
| 10 | 5 | 10 | – | – | – | – | – |
| 20 | 〃 | 20 | – | – | – | – | – |
| 30 | 〃 | 30 | – | – | ++ | – | – |
| 55 | 〃 | 55 | – | – | – | – | – |
| 80 | 〃 | 80 | – | – | – | – | – |
| 102 | 〃 | 102 | – | – | – | – | – |

Table 15. (Continued)

**Station Os 32**

Position 57°41′N 174°25′W Date, hour (ship's time) July 2, 1645–1823

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | ++ | ± | − |
| 10 | 50 | 6 | − | − | − | − | − |
| 20 | 〃 | 12 | − | − | − | − | − |
| 35 | 〃 | 20 | − | − | − | − | − |
| 55 | 〃 | 32 | − | − | − | − | − |
| 85 | 〃 | 50 | − | − | − | − | − |
| 110 | 〃 | 64 | − | − | − | − | − |
| 165 | 〃 | 96 | − | − | − | − | − |
| 220 | 〃 | 128 | − | − | − | − | − |
| 550 | 〃 | 320 | − | − | − | − | − |
| 835 | 〃 | (481) | − | − | − | − | − |
| 1100 | 〃 | 630 | − | − | − | − | − |
| 1660 | 〃 | (958) | − | − | − | − | − |

**Station Os 33**

Position 58°59′N 173°32′W Date, hour (ship's time) July 5, 1802–1940

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | − | − |
| 10 | 22 | 9 | − | + | − | + | − |
| 20 | 〃 | 19 | − | − | − | − | − |
| 30 | 〃 | 28 | − | − | − | − | − |
| 50 | 〃 | 46 | − | − | − | − | − |
| 80 | 〃 | 74 | − | − | − | − | − |
| 105 | 〃 | 97 | − | − | − | − | − |
| 118 | 〃 | 109 | − | − | − | − | − |

Table 15. (Continued)

**Station Os 34**

Position 61°01′N 173°24′W Date, hour (ship's time) July 6, 1135–1152

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | − | − |
| 10 | 15 | 10 | − | − | − | − | − |
| 20 | 〃 | 19 | − | − | ± | − | − |
| 50 | 〃 | 48 | − | − | − | − | − |
| 70 | 〃 | 68 | − | − | − | − | − |

**Station Os 35**

Position 61°00′N 171°39′W Date, hour (ship's time) July 6, 1920–1945

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | − | − |
| 10 | 7 | 10 | − | − | − | − | − |
| 20 | 〃 | 20 | − | − | − | − | − |
| 30 | 〃 | 30 | − | − | − | − | − |
| 50 | 〃 | 50 | − | − | − | − | − |

**Station Os 36**

Position 59°58′N 170°00′W Date, hour (ship's time) July 7, 1305–1330

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | ± | ± | + |
| 10 | 10 | 10 | − | − | − | − | − |
| 20 | 〃 | 20 | − | − | ± | − | − |
| 30 | 〃 | 30 | − | − | − | − | − |
| 50 | 〃 | 49 | − | − | − | − | − |

Table 15. (Continued)

**Station Os 37**

Position 59°25′N 169°12′W Date, hour (ship's time) July 7, 1830–1850

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | ± | − | + | − | − |
| 10 | 7 | 10 | − | − | − | − | − |
| 20 | 〃 | 20 | − | − | − | − | − |
| 30 | 〃 | 30 | − | − | − | − | − |
| 45 | 〃 | 45 | − | − | − | − | − |

**Station Os 38**

Position 58°43′N 167°54′W Date, hour (ship's time) July 8, 0835–0855

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | − | − | − | − |
| 10 | 10 | 10 | − | − | − | − | − |
| 20 | 〃 | 20 | − | − | − | − | − |
| 30 | 〃 | 30 | − | − | − | − | − |
| 40 | 〃 | 39 | − | − | − | − | − |

**Station Os 39**

Position 58°25′N 166°23′W Date, hour (ship's time) July 11, 1305–1335

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | + | ++ | − | − |
| 10 | 3 | 10 | − | − | − | ± | − |
| 20 | 〃 | 20 | − | − | − | − | − |
| 30 | 〃 | 30 | − | − | − | − | − |
| 45 | 〃 | 45 | − | − | − | − | − |

Table 15. (Continued)

**Station Os 40**

Position 58°10′N 164°42′W Date, hour (ship's time) July 11, 2100-2118

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | + | − |
| 10 | 5 | 10 | − | − | − | ± | − |
| 20 | 〃 | 20 | − | − | − | − | − |
| 30 | 〃 | 30 | − | − | − | − | − |
| 45 | 〃 | 45 | − | − | − | − | − |

**Station Os 41**

Position 57°46′N 162°01′W Date, hour (ship's time) July 12, 2000-2020

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | − | − | − | − |
| 10 | 0 | 10 | + | + | − | − | − |
| 20 | 〃 | 20 | + | ± | − | − | − |
| 30 | 〃 | 30 | + | + | − | − | − |

**Station Os 42**

Position 56°50′N 163°04′W Date, hour (ship's time) July 13, 1307-1358

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | + | ++ | − | − |
| 10 | 0 | 10 | − | − | − | − | − |
| 20 | 〃 | 20 | − | − | − | − | − |
| 30 | 〃 | 30 | − | − | − | − | − |
| 50 | 〃 | 50 | − | − | − | − | − |
| 65 | 〃 | 65 | − | ± | − | − | − |

Table 15. (Continued)

**Station Os 44**

Position 55°07′N 164°59′W Date, hour (ship's time) July 14, 0535–0600

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | ++ | ++ | ± | − |
| 10 | 14 | 10 | − | − | − | − | − |
| 20 | 〃 | 19 | − | − | − | − | − |
| 30 | 〃 | 29 | − | − | − | − | − |
| 50 | 〃 | 49 | − | − | − | − | − |
| 75 | 〃 | 73 | − | − | ++ | − | − |
| 100 | 〃 | 97 | ± | ± | − | − | − |

**Station Os 46**

Position 54°15′N 160°40′W Date, hour (ship's time) July 15, 0840–0918

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | ± | − |
| 10 | 10 | 10 | − | − | − | − | − |
| 20 | 〃 | 20 | − | − | − | − | − |
| 30 | 〃 | 30 | − | − | + | ± | − |
| 50 | 〃 | 49 | − | − | − | − | − |
| 75 | 〃 | 74 | − | − | − | − | − |
| 100 | 〃 | 99 | − | − | − | − | − |
| 150 | 〃 | 148 | − | − | − | − | − |
| 200 | 〃 | 197 | − | − | − | − | − |
| 250 | 〃 | 246 | − | − | − | − | − |

Table 15. (Continued)

**Station Os 48**

Position 54°39′N 156°02′W Date, hour (ship's time) July 16, 1833–2010

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | – | – | – | – | – |
| 10 | 20 | 9 | – | – | – | – | – |
| 20 | 〃 | 18 | – | + | – | – | – |
| 30 | 〃 | 27 | – | – | – | – | – |
| 50 | 〃 | 45 | – | – | – | – | – |
| 75 | 〃 | 67 | – | – | – | – | – |
| 100 | 〃 | 89 | – | – | – | – | – |
| 150 | 〃 | 134 | – | – | – | – | – |
| 200 | 〃 | 178 | – | – | – | – | – |
| 490 | 〃 | 434 | – | – | – | – | – |
| 750 | 〃 | | – | – | – | – | – |
| 1000 | 〃 | | – | – | – | – | – |
| 1500 | 〃 | | – | – | – | – | – |

**Station Os 50**

Position 55°54′N 149°24′W Date, hour (ship's time) July 18, 0832–1118

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | – | – | – | – | – |
| 10 | 55 | 6 | – | – | – | – | – |
| 20 | 〃 | 11 | – | – | – | – | – |
| 35 | 〃 | 20 | – | – | – | – | – |
| 55 | 〃 | 32 | – | – | – | – | – |
| 85 | 58 | 45 | – | – | – | – | – |
| 110 | 〃 | 58 | – | – | – | – | – |
| 165 | 〃 | 87 | – | – | – | – | – |
| 220 | 〃 | 117 | – | – | – | – | – |
| 1100 | 〃 | | – | – | – | – | – |
| 1660 | 〃 | | – | – | – | – | – |

Table 15. (Continued)

**Station Os 51**

Position 56°52′N 145°22′W Date, hour (ship's time) July 19, 0835–1029

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | − | − |
| 10 | 52 | 7 | − | + | − | − | − |
| 20 | 〃 | 13 | − | − | − | − | − |
| 35 | 〃 | 23 | − | − | − | − | − |
| 55 | 〃 | 36 | − | − | − | − | − |
| 85 | 〃 | 56 | − | − | − | − | − |
| 110 | 〃 | 72 | − | − | − | − | − |
| 165 | 〃 | 86 | − | − | − | − | − |
| 220 | 〃 | 145 | − | − | − | − | − |
| 550 | 〃 | 410 | − | − | − | − | − |
| 835 | 〃 | (700) | − | − | − | − | − |
| 1100 | 〃 | (1010) | − | − | − | − | − |
| 1660 | 〃 | | − | − | − | − | − |

**Station Os 52**

Position 48°14′N 146°32′W Date, hour (ship's time) Aug. 10, 1530–1759

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | ± | ± | + | − | |
| 10 | 25 | 9 | − | − | + | − | |
| 20 | 〃 | 18 | − | − | − | − | |
| 35 | 〃 | 31 | − | − | + | − | |
| 55 | 〃 | 49 | − | − | − | − | |
| 85 | 30 | 74 | − | − | − | − | |
| 110 | 25 | 98 | − | − | − | − | |
| 165 | 〃 | 148 | ± | ± | + | + | |
| 220 | 〃 | 197 | − | − | − | ± | |
| 550 | 〃 | 493 | − | − | − | − | |
| 835 | 〃 | (742) | − | − | − | − | |
| 1100 | 35 | (1195) | − | − | − | − | |

Table 15. (Continued)

**Station Os 53**

Position 43°09′N 170°30′W Date, hour (ship's time) Aug. 16, 1530-1653

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | − | − | − | − | |
| 10 | 17 | 10 | + | − | − | ± | |
| 20 | 〃 | 19 | − | − | + | − | |
| 30 | 〃 | 29 | − | − | − | − | |
| 50 | 〃 | 48 | − | − | − | − | |
| 80 | 〃 | 76 | − | − | − | − | |
| 105 | 〃 | 100 | − | − | − | − | |
| 155 | 〃 | 148 | − | − | − | − | |
| 210 | 〃 | 201 | − | − | − | − | |
| 510 | 〃 | 494 | − | − | − | − | |
| 780 | 〃 | (747) | − | − | − | − | |
| 1030 | 〃 | | − | − | − | − | |

**Station Os 54**

Position 42°09′N 179°42′W Date, hour (ship's time) Aug. 18, 1532-1726

| Wire length (m) | Wire angle (degree) | Depth (m) | Ammonifier | $H_2S$ producer | Nitrate reducer | Sulfate reducer | Starch hydrolyzer |
|---|---|---|---|---|---|---|---|
| 0 | | 0 | + | − | + | + | |
| 10 | 34 | 8 | + | ± | + | ± | |
| 20 | 〃 | 17 | ± | − | − | + | |
| 35 | 〃 | 29 | + | − | + | + | |
| 55 | 〃 | 46 | ± | ± | − | ± | |
| 85 | 〃 | 70 | + | ± | + | ± | |
| 165 | 〃 | 137 | + | − | − | − | |
| 220 | 〃 | 182 | − | + | − | − | |
| 550 | 45 | 400 | + | − | − | + | |
| 835 | 48 | (573) | − | − | − | − | |
| 1100 | 〃 | 796 | + | − | + | ± | |

## 10. Data on Phytoplankton Standing Crop
(植物プランクトン現存量記録)

1. Spectrophotometric determination of phytoplankton chlorophyll
(植物プランクトン葉緑素の分光測定)

Two to eleven liters of surface water were sampled at 71 stations at the same time as Exp. 1 of $C^{14}$ productivity measurement.

Sample water was filtered through a coarse membrane filter, 4 cm in diameter, having pores of 0.6 microns in diameter on the average.

The filters with retained phytoplankton were folded and immersed into boiling water for 30 seconds. Then they were dried out and taken back to the University by keeping them at low temperature and completely dark.

The above procedures on board were made by T. Kawamura.

After returning from the cruise dried fiters were packed and mailed to the Chemical Laboratory at the Hokkaido Regional Fisheries Research Laboratory in Yoichi.

Each dried filter was immersed into 5 cc of 90 % acetone solution (redistilled extrapure acetone was used) for 18 hours. The filter was completely dissolved and all pigments of phytoplankton were extracted into solution. (ref. to P.S. Davis, 1957. C.S.I.R.O. Aust. Div. Fish. Oceanogr., Rep. No. 7)

Extracted pigments were transferred into cuvette which was then set in a Beckmann type spectrophotometer, Model Shimadzu D.U. 50. Absorbing path of the sample was 10 mm.

With this photometer light absorption (665 mμ wave length) was measured.

Chlorophyll *a* content of phytoplankton in mg per 1 $m^3$ of sea water was calculated by the following formula (Davis, *loc. cit.*):

$$D \frac{Va}{Vs} 15000 \text{ mg/m}^3$$

Where D is the observed optical density, Vs is volume of water sample (ml) and Va is volume of acetone extract (ml).

The above analysis and calculation were made by M. Miwa in Yoichi.

2. Direct cell count of phytoplankton (植物プランクトン細胞数算定)

At the same time of the samplings for chlorophyll determination, 500 cc of surface water were dipped and preserved by adding formalin. These samples were used for direct cell count under the microscope.

Samplings and countings were made by T. Kawamura.

Table 16. Data on chlorophyll content and cell number of surface phytoplankton in the

| Station (Fig. 18) | Position | | Ship's date | | Ship's time | Water volume filtered (*l*) | Chlorophyll *a* content (mg/m$^3$) |
|---|---|---|---|---|---|---|---|
| 1 | 41°58′N | 147°25′E | June | 8 | 0550 | 3 | 1.03 |
| 2 | 42°18′N | 148°16′E | | 8 | 1150 | 3 | 0.88 |
| 3 | 43°13′N | 151°05′E | | 9 | 0550 | 2 | 2.89 |
| 4 | 43°40′N | 152°07′E | | 9 | 1255 | 3 | 0.95 |
| 5 | 44°45′N | 155°03′E | | 10 | 0600 | 2.5 | 3.57 |
| 6 | 45°16′N | 156°18′E | | 10 | 1255 | 3 | 1.37 |
| 7 | 46°23′N | 159°38′E | | 11 | 0555 | 3 | 1.65 |
| 8 | 48°40′N | 159°36′E | | 13 | 0555 | 5 | 0.84 |
| 9 | 48°56′N | 166°37′E | | 13 | 1255 | 8 | 0.51 |
| 10 | 49°33′N | 169°03′E | | 14 | 1255 | 7.5 | 0.38 |
| 11 | 50°09′N | 170°00′E | | 15 | 0555 | 6 | 0.24 |
| 12 | 51°09′N | 170°00′E | | 15 | 1255 | 4 | 0.81 |
| 13 | 53°25′N | 170°10′E | | 16 | 0625 | 5 | 0.45 |
| 14 | 53°55′N | 170°10′E | | 16 | 1245 | 5 | 0.57 |
| 15 | 54°56′N | 170°10′E | | 17 | 0550 | 5 | 0.44 |
| 16 | 56°13′N | 170°32′E | | 17 | 1250 | 5 | 0.72 |
| 17 | 57°08′N | 173°19′E | | 18 | 0645 | 4 | 0.93 |
| 18 | 57°02′N | 174°50′E | | 18 | 1255 | 5 | 0.78 |
| 19 | 54°51′N | 175°05′E | | 20 | 0605 | 6 | 0.50 |
| 20 | 53°48′N | 175°08′E | | 20 | 1255 | 6 | 0.05 |
| 21 | 53°02′N | 177°05′E | | 21 | 1255 | 8 | 0.27 |
| 22 | 52°56′N | 178°46′W | | 23 | 0555 | 5 | 1.30 |
| 23 | 51°45′N | 179°08′W | | 23 | 1355 | 6 | 0.18 |
| 24 | 48°24′N | 173°11′W | | 26 | 0715 | 6 | 0.30 |
| 25 | 48°22′N | 172°00′W | | 26 | 1250 | 7 | 0.17 |
| 26 | 53°09′N | 172°06′W | | 28 | 0555 | 5 | 0.34 |
| 27 | 53°31′N | 171°55′W | | 28 | 1245 | 6 | 0.18 |
| 28 | 55°05′N | 171°54′W | | 29 | 1255 | 8 | 0.16 |
| 29 | 56°08′N | 171°51′W | July | 1 | 0545 | 7 | 0.46 |

*IV. Oshoro Maru Cruise 46 to the Bering Sea and North Pacific*

"Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

| Cell number/$m^3$ of surface water | Dominant species |
|---|---|
| 200 × $10^4$ | *Rhizosolenia hebetata* f. *semispina* |
| 80 〃 | *Chaetoceros atlanticus* |
| 9168 〃 | *Ch. debilis* |
| 1160 〃 | *Ch. debilis* |
| 11456 〃 | *Ch. debilis* |
| 9584 〃 | *Ch. debilis* |
| 1192 〃 | *Ch. debilis* |
| 1152 〃 | *Ch. debilis* |
| 1140 〃 | *Ch. debilis* |
| 64 〃 | *Ch. debilis* |
| 424 〃 | *Ch. debilis* |
| 368 〃 | *Ch. debilis* |
| 2210 〃 | *Ch. debilis* |
| 136 〃 | *Navicula* sp. |
| 224 〃 | *Denticula marina* |
| 104 〃 | *Chaetoceros atlanticus* |
| 176 〃 | *Ch. atlanticus* |
| 320 〃 | *Denticula marina* |
| 96 〃 | *Asteromphalus heptactis* |
| 584 〃 | *Nitzschia seriata* |
| 392 〃 | *Denticula marina* |
| 14744 〃 | *Chaetoceros debilis* |
| 148 〃 | *Ch. debilis* |
| 184 〃 | *Thalassiothrix longissima* |
| 268 〃 | *Thal'thrix longissima* |
| 1504 〃 | *Fragilaria striatula* |
| 180 〃 | *F. striatula* |
| 216 〃 | *F. striatula* |
| 128 〃 | *F. striatula* |

Table 16.

| Station (Fig. 18) | Position | Ship's date | Ship's time | Water volume filtered (*l*) | Chlorophyll *a* content (mg/m³) |
|---|---|---|---|---|---|
| 30 | 57°18′N 171°54′W | July 1 | 1245 | 7 | 0.20 |
| 31 | 57°36′N 172°04′W | 2 | 0555 | 5 | 0.34 |
| 32 | 57°43′N 174°40′W | 2 | 1245 | 6 | 0.28 |
| 33 | 57°24′N 174°37′W | 5 | 0600 | 6 | 0.19 |
| 34 | 58°21′N 174°00′W | 5 | 1245 | 4 | 0.53 |
| 35 | 60°14′N 173°24′W | 6 | 0600 | 6 | 0.14 |
| 36 | 61°01′N 173°24′W | 6 | 1245 | 5 | 0.26 |
| 37 | 59°58′N 170°00′W | 7 | 1245 | 6 | 0.18 |
| 38 | 58°43′N 167°54′W | 8 | 0825 | 7 | 0.12 |
| 39 | 〃 | 8 | 1250 | 6 | 0.26 |
| 40 | 58°25′N 166°23′W | 11 | 1255 | 9.5 | 0.02 |
| 41 | 57°48′N 162°04′W | 13 | 0600 | 8 | 1.32 |
| 42 | 56°50′N 163°04′W | 13 | 1245 | 7 | 0.70 |
| 43 | 55°07′N 164°59′W | 14 | 0545 | 7 | 6.59 |
| 44 | 54°20′N 164°53′W | 14 | 1250 | 7 | 1.37 |
| 45 | 54°04′N 161°12′W | 15 | 0550 | 6 | 0.50 |
| 46 | 54°18′N 159°50′W | 15 | 1250 | 6 | 0.20 |
| 47 | 54°22′N 157°17′W | 16 | 1250 | 6 | 0.09 |
| 48 | 55°01′N 153°58′W | 17 | 0600 | 6 | 0.28 |
| 49 | 55°11′N 152°51′W | 17 | 1255 | 6 | 0.28 |
| 50 | 56°46′N 145°49′W | 19 | 0630 | 5 | 0.53 |
| 51 | 57°41′N 133°47′W | 26 | 1255 | 4 | 12.50 |
| 52 | 55°18′N 134°10′W | 27 | 0555 | 2 | 1.84 |
| 53 | 54°16′N 133°43′W | 27 | 1255 | 3 | 0.35 |
| 54 | 49°23′N 126°55′W | 29 | 0555 | 3 | 2.28 |
| 55 | 48°55′N 125°48′W | 29 | 1255 | 2 | 1.58 |
| 56 | 48°29′N 139°43′W | Aug. 9 | 0555 | 6 | 0.58 |
| 57 | 48°25′N 141°19′W | 9 | 1255 | 6 | 0.38 |
| 58 | 48°06′N 148°39′W | 11 | 0545 | 6 | 0.46 |

(Continued)

| Cell number/$m^3$ of surface water | Dominant species |
|---|---|
| 136 × $10^4$ | *Fragilaria striatula* |
| 144 〃 | *F. striatula* |
| 328 〃 | *F. striatula* |
| 88 〃 | *F. striatula* |
| 80 〃 | *Fragilaria* sp. |
| 448 〃 | *F. striatula* |
| 112 〃 | *F. striatula* |
| 248 〃 | *Chaetoceros compressus* |
| 232 〃 | *Fragilaria striatula, Chaetoceros concavicornis* |
| 248 〃 | *Chaetoceros concavicornis, Fragilaria striatula* |
| 120 〃 | *Peridinium* sp. |
| 224 〃 | *Coscinodiscus radiatus* |
| 14776 〃 | *Goniaulex Tamarensis* |
| 245280 〃 | *Nitzschia closterium* |
| 11112 〃 | *Chaetoceros debilis* |

Table 16.

| Station (Fig. 18) | Position | | Ship's date | Ship's time | Water volume filtered ($l$) | Chlorophyll *a* content (mg/m$^3$) |
|---|---|---|---|---|---|---|
| 59 | 48°00′N | 149°52′W | Aug. 11 | 1245 | 7 | 0.32 |
| 60 | 47°25′N | 157°23′W | 13 | 0550 | 4.5 | 0.78 |
| 61 | 45°23′N | 164°25′W | 15 | 0555 | 10 | 0.27 |
| 62 | 45°16′N | 165°50′W | 15 | 1250 | 8 | 0.38 |
| 63 | 44°06′N | 168°40′W | 16 | 0545 | 8 | 0.44 |
| 64 | 43°20′N | 170°03′W | 16 | 1245 | 5 | 0.41 |
| 65 | 42°15′N | 177°53′E | 20 | 0545 | 11 | 0.17 |
| 66 | 42°16′N | 176°52′E | 20 | 1245 | 9 | 0.12 |
| 67 | 42°23′N | 164°41′E | 23 | 0545 | 4 | 0.66 |
| 68 | 42°46′N | 163°16′E | 23 | 1245 | 3 | 0.48 |
| 69 | 43°40′N | 154°47′E | 25 | 0545 | 7 | 0.14 |
| 70 | 41°75′N | 145°02′E | 28 | 0555 | 5 | 0.48 |
| 71 | 41°53′N | 143°56′E | 28 | 1245 | 5 | 0.02 |

(Continued)

| Cell number/$m^3$ of surface water | Dominant species |
|---|---|
| | |

## 11. Data on Phytoplankton photosynthetic Activity
(植物プランクトン光合成活動度記録)

1. Phytoplankton photosynthetic activity in various localities (海域別植物プランクトン光合成活動度)

All procedures of $C^{14}$ method were conducted under instructions given by M. S. Doty and M. Oguri (1958, Rapp. et Proc.-Verb. Vol. 144, pp. 47-55).

Experiments were carried out at 34 stations in the morning and at 37 stations in the afternoon.

At about 5.50 in the morning and at about 12.50 in the afternoon respectively about two liters of water were sampled from the sea surface at the bow with a plastic bucket. The sample water was poured into two light bottles (unpainted) and one dark bottle (painted with black enamel), each about 250 cc in capacity.

Two mililiters of sodium carbonate solution of carbon fourteen radioactive isotope, $4.99 \times 10^6$ counts per minute, were added into each bottle.

These three bottles were placed in a constant illumination-temperature incubating box in the laboratory on board. This box was 68 cm long, 42 cm wide and 23 cm deep, and installed with three rows of illuminators and between the illuminators two rows of narrow plastic boxes inside of which experimental bottles could be set.

Each illuminator was composed of two cool white fluorescent tubes, each 20 W, arranged one above the other. Each experimental bottle received an illumination of about 800 foot-candles. (Later, we were aware of the fact that this light intensity was insufficient for this experiment.)

Water introduced from the Donkey pump of the hull circulated inside the narrow plastic boxes, keeping the experimental bottles almost at the same temperature as that of the sea surface.

Incubation normally lasted from 6.00 a.m. to 11.00 a.m. for morning samples and from 1.00 p.m. to 6.00 p.m. for afternoon samples.

After exposure to the light was completed, the sample water in the bottles was passed through a milipore filter by means of an aspiration filtering apparatus. Then 0.001 N hydrochloric acid in 35 ‰ NaCl water, and after that, filtered sea water was passed through the filter.

The milipore filter retaining phytoplankton, which had absorbed carbon fourteen isotope corresponding to their assimilation activity, were dried out and stored in a desiccator to return to the University.

The above experiments on board were made by T. Kawamura.

The dried filters were sent to Dr. M. S. Doty for the counting of the radioactivity at his laboratory in the University of Hawaii.

The sodium carbonate solution of carbon fourteen stored in ampoules and milipore filters were supplied by the Atomic Energy Commission of the United States through the courtesy of Dr. Maxwell S. Doty, Department of Botany, University of Hawaii, Honolulu, Hawaii. An incubating box was also supplied by Dr. Doty, but the incubator used on this cruise was that which was constructed in Japan under similar design.

A part of expenses for this study was supplied by UNESCO Japan National Committee.

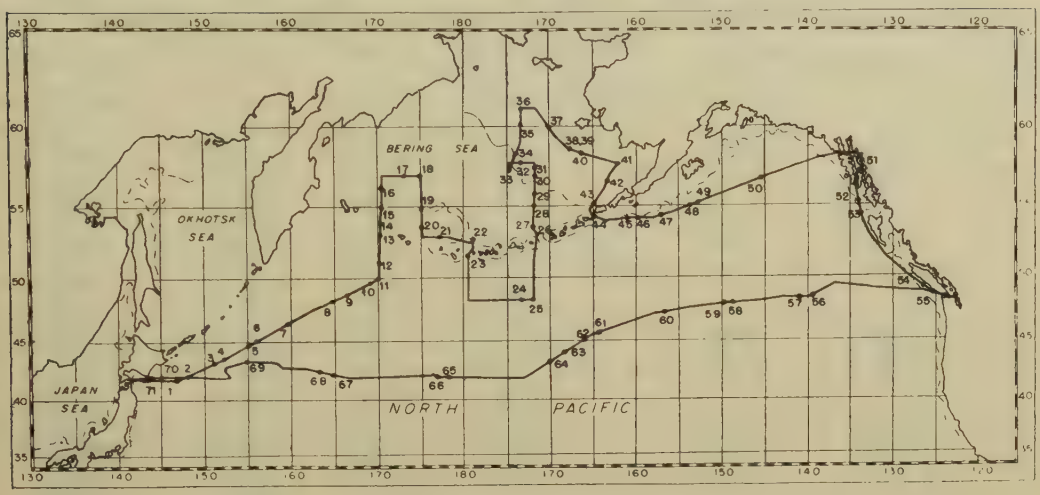



Fig. 18. $C^{14}$ stations in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

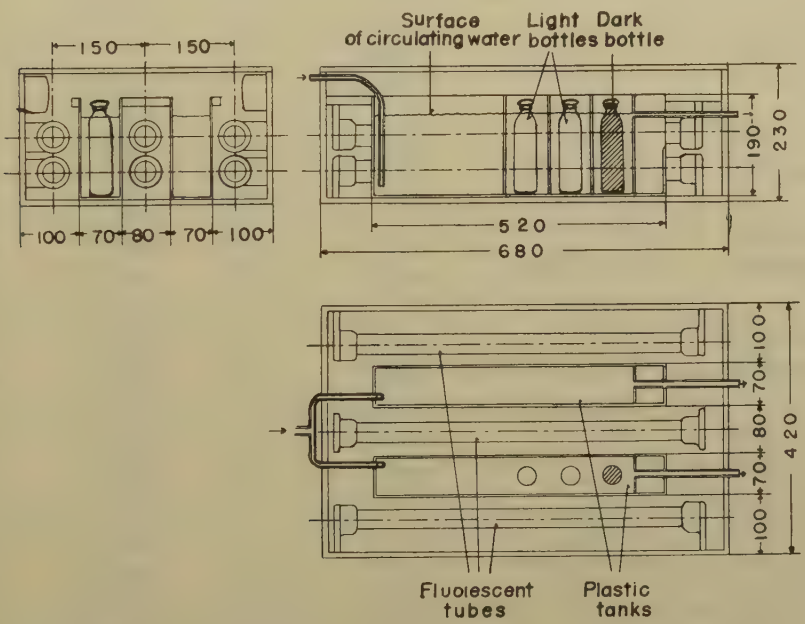



Fig. 19. Illuminated constant temperature incubator used for $C^{14}$ productivity experiments during "Oshoro Maru" cruise 46 in June–August 1960

Table 17. Data on phytoplankton photosynthetic activity in the "Oshoro

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 1 | 41°58′ N<br>147°25′ E | June 8 | 0550 | 0605～<br>1105 | L<br>L<br>D | 5226<br>5227<br>5228 | 5086/3<br>3357/3<br>389/10 |
| 2 | 42°18′ N<br>148°16′ E | 8 | 1150 | 1200～<br>1700 | L<br>L<br>D | 5229<br>5230<br>5231 | 3813/3<br>4057/3<br>504/10 |
| 3 | 43°13′ N<br>151°05′ E | 9 | 0550 | 0600～<br>1100 | L<br>L<br>D | 5232<br>5233<br>5234 | 8949/3<br>8704/3<br>515/10 |
| 4 | 43°40′ N<br>152°07′ E | 9 | 1255 | 1308～<br>1808 | L<br>L<br>D | 5240<br>5241<br>5242 | 5048/3<br>4416/3<br>326/10 |
| 5 | 44°45′ N<br>155°03′ E | 10 | 0600 | 0610～<br>1110 | L<br>L<br>D | 5245<br>5246<br>5247 | 17924/3<br>18085/3<br>1101/10 |
| 6 | 45°16′ N<br>156°18′ E | 10 | 1255 | 1314～<br>1814 | L<br>L<br>D | 5248<br>5249<br>5250 | 1128/3<br>2263/3<br>6786/10 |
| 7 | 46°23′ N<br>159°38′ E | 11 | 0555 | 0605～<br>1105 | L<br>L<br>D | 5251<br>5252<br>5253 | 3463/3<br>3977/3<br>357/10 |
| 8 | 48°40′ N<br>159°36′ E | 13 | 0555 | 0613～<br>1113 | L<br>L<br>D | 5254<br>5256<br>5257 | 3444/3<br>3408/3<br>410/10 |
| 9 | 48°56′ N<br>166°37′ E | 13 | 1255 | 1300～<br>1800 | L<br>L<br>D | 5260<br>5261<br>5262 | 2213/3<br>2256/3<br>305/10 |
| 10 | 49°33′ N<br>169°03′ E | 14 | 1255 | 1301～<br>1801 | L<br>L<br>D | 5263<br>5264<br>5265 | 1538/3<br>927/3<br>241/10 |
| 11 | 50°09′ N<br>170°00′ E | 15 | 0555 | 0615～<br>1115 | L<br>L<br>D | 5266<br>5267<br>5268 | 1811/3<br>1759/3<br>233/10 |
| 12 | 51°09′ N<br>170°00′ E | 15 | 1255 | 1301～<br>1801 | L<br>L<br>D | 5274<br>5275<br>5276 | 1792/3<br>3034/3<br>288/10 |
| 13 | 53°25′ N<br>170°10′ E | 16 | 0625 | 0631～<br>1131 | L<br>L<br>D | 5277<br>5278<br>5279 | 3225/3<br>2956/3<br>268/10 |

Maru'' cruise 46 to the Bering Sea and North Pacific in June–August 1960

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mgC/hr/$m^3$ | Average counts/m |
|---|---|---|---|---|---|---|---|
| 126147 | 4737/3 | 1579 | 1549 | 5 | 1543 | 1.518 | 1.518 |
| 〃 | 3127/3 | 1042 | 1012 | | 1006 | 0.990 | 0.990 |
| 125702 | 364/10 | 36 | 6 | | | | |
| 125702 | 3564/3 | 1188 | 1158 | 5 | 1141 | 1.123 | 1.157 |
| 126438 | 3770/3 | 1257 | 1227 | | 1210 | 1.190 | |
| 〃 | 468/10 | 47 | 17 | | | | |
| 122824 | 8561/3 | 2854 | 2823 | 5 | 2805 | 2.759 | 2.720 |
| 〃 | 8327/3 | 2776 | 2745 | | 2727 | 2.682 | |
| 123481 | 490/10 | 49 | 18 | | | | |
| 122785 | 4831/3 | 1610 | 1579 | 5 | 1579 | 1.553 | 1.450 |
| 〃 | 4226/3 | 1408 | 1377 | | 1377 | 1.355 | |
| 122505 | 313/10 | 31 | 0 | | | | |
| 124035 | 16979/3 | 5660 | 5628 | 5 | 5555 | 5.465 | 5.489 |
| 124080 | 17126/3 | 5709 | 5678 | | 5605 | 5.514 | |
| 〃 | 1043/10 | 104 | 73 | | | | |
| 122973 | 1078/3 | 359 | 328 | 5 | −288 | −0.283 | −0.283 |
| 〃 | 2162/3 | 721 | 690 | | 74 | 0.073 | 0.073 |
| 123227 | 6471/10 | 647 | 616 | | | | |
| 122378 | 3324/3 | 1108 | 1077 | 5 | 1074 | 1.057 | 1.134 |
| 〃 | 3792/3 | 1264 | 1233 | | 1230 | 1.210 | |
| 123227 | 340/10 | 34 | 3 | | | | |
| 122535 | 3302/3 | 1101 | 1070 | 5 | 1062 | 1.044 | 1.039 |
| 〃 | 3267/3 | 1089 | 1058 | | 1050 | 1.033 | |
| 122943 | 392/10 | 39 | 8 | | | | |
| 121243 | 2145/3 | 715 | 695 | 5 | 685 | 0.674 | 0.681 |
| 〃 | 2186/3 | 729 | 709 | | 699 | 0.688 | |
| 120801 | 297/10 | 30 | 10 | | | | |
| 120801 | 1496/3 | 499 | 479 | 5 | 475 | 0.467 | 0.467 |
| 117178 | 930/3 | 310 | 290 | | 286 | 0.281 | 0.281 |
| 〃 | 242/10 | 24 | 4 | | | | |
| 117198 | 1816/3 | 605 | 585 | 5 | 581 | 0.572 | 0.564 |
| 〃 | 1764/3 | 588 | 568 | | 564 | 0.555 | |
| 116105 | 236/10 | 24 | 4 | | | | |
| 116952 | 1800/3 | 600 | 580 | 5 | 571 | 0.562 | 0.562 |
| 〃 | 3048/3 | 1016 | 996 | | 987 | 0.971 | 0.971 |
| 116694 | 290/10 | 29 | 9 | | | | |
| 116694 | 3247/3 | 1082 | 1062 | 5 | 1055 | 1.038 | 0.996 |
| 116184 | 2989/3 | 996 | 976 | | 969 | 0.953 | |
| 〃 | 271/10 | 27 | 7 | | | | |

Table 17.

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 14 | 53°55′ N<br>170°10′ E | 16 | 1245 | 1303～<br>1803 | L<br>L<br>D | 5280<br>5281<br>5282 | 2982/3<br>2973/3<br>305/10 |
| 15 | 54°56′ N<br>170°10′ E | 17 | 0550 | 0600～<br>1100 | L<br>L<br>D | 5283<br>5284<br>5285 | 2335/3<br>2322/3<br>277/10 |
| 16 | 56°13′ N<br>170°32′ E | 17 | 1250 | 1300～<br>1800 | L<br>L<br>D | 5291<br>5292<br>5293 | 2242/3<br>2545/3<br>345/10 |
| 17 | 57°00′ N<br>173°19′ E | 18 | 0645 | 0700～<br>1200 | L<br>L<br>D | 5294<br>5295<br>5296 | 3086/3<br>3058/3<br>365/10 |
| 18 | 57°00′ N<br>174°50′ E | 18 | 1255 | 1335～<br>1835 | L<br>L<br>D | 5302<br>5303<br>5304 | 2070/3<br>1901/3<br>242/10 |
| 19 | 54°51′ N<br>175°05′ E | 20 | 0605 | 0620～<br>1120 | L<br>L<br>D | 5310<br>5311<br>5312 | 2119/3<br>1669/3<br>307/10 |
| 20 | 53°48′ N<br>175°08′ E | 20 | 1255 | 1300～<br>1800 | L<br>L<br>D | 5313<br>5314<br>5315 | 2209/3<br>1889/3<br>246/10 |
| 21 | 53°02′ N<br>177°05′ E | 21 | 1255 | 1300～<br>1800 | L<br>L<br>D | 5316<br>5317<br>5318 | 1634/3<br>1494/3<br>261/10 |
| 22 | 52°56′ N<br>178°46′ W | 23 | 0555 | 0606～<br>1106 | L<br>L<br>D | 5319<br>5320<br>5321 | 8711/3<br>6922/3<br>361/10 |
| 23 | 51°45′ N<br>179°08′ W | 23 | 1355 | 1404～<br>1904 | L<br>L<br>D | 5322<br>5323<br>5324 | 1978/3<br>1845/3<br>253/10 |
| 24 | 48°24′ N<br>173°11′ W | 26 | 0715 | 0730～<br>1230 | L<br>L<br>D | 5325<br>5326<br>5327 | 1712/3<br>1594/3<br>270/10 |
| 25 | 48°22′ N<br>172°00′ W | 26 | 1250 | 1304～<br>1804 | L<br>L<br>D | 5333<br>5334<br>5335 | 111/3<br>1743/3<br>266/10 |
| 26 | 53°09′ N<br>172°00′ W | 28 | 0555 | 0609～<br>1109 | L<br>L<br>D | 5341<br>5342<br>5343 | 3291/3<br>2579/3<br>304/10 |

(Continued)

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mgC/hr/m$^3$ | Average counts/m |
|---|---|---|---|---|---|---|---|
| 114957 | 3048/3 | 1016 | 996 | 5 | 985 | 0.969 | 0.968 |
| 〃 | 3039/3 | 1013 | 993 | | 982 | 0.966 | |
| 116227 | 308/10 | 31 | 11 | | | | |
| 116227 | 2361/3 | 787 | 767 | 5 | 759 | 0.747 | 0.741 |
| 117288 | 2326/8 | 775 | 755 | | 747 | 0.735 | |
| 〃 | 278/10 | 28 | 8 | | | | |
| 116323 | 2265/3 | 755 | 733 | 5 | 720 | 0.708 | 0.764 |
| 114804 | 2603/3 | 868 | 846 | | 833 | 0.820 | |
| 〃 | 363/10 | 35 | 13 | | | | |
| 114496 | 3167/3 | 1056 | 1034 | 5 | 1019 | 1.002 | 0.998 |
| 〃 | 3138/3 | 1046 | 1024 | | 1009 | 0.993 | |
| 115776 | 370/10 | 37 | 15 | | | | |
| 114422 | 2126/3 | 709 | 687 | 5 | 684 | 0.673 | 0.645 |
| 〃 | 1952/3 | 551 | 629 | | 626 | 0.616 | |
| 114253 | 249/10 | 25 | 3 | | | | |
| 115992 | 2147/3 | 716 | 694 | 5 | 685 | 0.674 | 0.599 |
| 〃 | 1691/3 | 564 | 542 | | 533 | 0.524 | |
| 115509 | 312/10 | 31 | 9 | | | | |
| 115509 | 2247/3 | 749 | 727 | 5 | 724 | 0.712 | 0.661 |
| 114760 | 1934/3 | 645 | 623 | | 620 | 0.610 | |
| 〃 | 252/10 | 25 | 3 | | | | |
| 114965 | 1670/3 | 557 | 535 | 5 | 530 | 0.521 | 0.498 |
| 〃 | 1527/3 | 509 | 487 | | 482 | 0.474 | |
| 113109 | 271/10 | 27 | 5 | | | | |
| 113109 | 9049/3 | 3016 | 2994 | 5 | 2979 | 2.931 | 2.615 |
| 114263 | 7118/3 | 2373 | 2351 | | 2336 | 2.298 | |
| 〃 | 371/10 | 37 | 15 | | | | |
| 114916 | 2022/3 | 674 | 652 | 5 | 648 | 0.638 | 0.616 |
| 〃 | 1886/3 | 629 | 607 | | 603 | 0.593 | |
| 114130 | 260/10 | 26 | 4 | | | | |
| 114130 | 1763/3 | 58 | 566 | 5 | 560 | 0.551 | 0.531 |
| 114391 | 1637/3 | 854 | 524 | | 518 | 0.510 | |
| 〃 | 297/10 | 62 | 6 | | | | |
| 111617 | 117/3 | 39 | 20 | 5 | 11 | 0.011 | 0.011 |
| 111208 | 1842/3 | 614 | 595 | | 586 | 0.577 | 0.577 |
| 〃 | 281/10 | 28 | 9 | | | | |
| 111134 | 3480/3 | 1160 | 1141 | 5 | 1128 | 1.109 | 0.981 |
| 112350 | 2697/3 | 899 | 880 | | 867 | 0.853 | |
| 〃 | 318/10 | 32 | 13 | | | | |

Table 17.

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 27 | 53°31′N<br>171°55′W | 28 | 1245 | 1309～<br>1809 | L<br>L<br>D | 5349<br>5350<br>5351 | 3401/3<br>2875/3<br>258/10 |
| 28 | 55°05′N<br>171°54′W | 29 | 1255 | 1310～<br>1810 | L<br>L<br>D | 5357<br>5358<br>5359 | 1930/3<br>1958/3<br>375/10 |
| 29 | 56°08′N<br>171°51′W | July<br>1 | 0545 | 0600～<br>1100 | L<br>L<br>D | 5363<br>5364<br>5365 | 4934/3<br>4225/3<br>377/10 |
| 30 | 57°18′N<br>171°54′W | 1 | 1245 | 1300～<br>1600 | L<br>L<br>D | 5366<br>5367<br>5368 | 3420/3<br>3197/3<br>399/10 |
| 31 | 57°36′N<br>172°04′W | 2 | 0555 | 0604～<br>1104 | L<br>L<br>D | 5369<br>5370<br>5371 | 2717/3<br>2175/3<br>449/10 |
| 32 | 57°43′N<br>174°40′W | 2 | 1245 | 1300～<br>1800 | L<br>L<br>D | 5372<br>5373<br>5374 | 3034/3<br>3613/3<br>438/10 |
| 33 | 57°24′N<br>174°37′W | 5 | 0600 | 0618～<br>1118 | L<br>L<br>D | 5375<br>5376<br>5377 | 5977/3<br>5358/3<br>271/10 |
| 34 | 58°21′N<br>174°00′W | 5 | 1245 | 1300～<br>1800 | L<br>L<br>D | 5378<br>5379<br>5380 | 2140/3<br>1902/3<br>358/10 |
| 35 | 60°14′N<br>173°24′W | 6 | 0600 | 0607～<br>1107 | L<br>L<br>D | 5381<br>5382<br>5383 | 1417/3<br>1121/3<br>344/10 |
| 36 | 61°01′N<br>173°24′W | 6 | 1245 | 1309～<br>1809 | L<br>L<br>D | 5389<br>5390<br>5391 | 1035/3<br>1889/3<br>320/10 |
| 37 | 59°58′N<br>170°00′W | 7 | 1245 | 1300～<br>1800 | L<br>L<br>D | 5397<br>5398<br>5399 | 1137/3<br>663/3<br>305/10 |
| 38 | 58°43′N<br>167°54′W | 8 | 0825 | 0830～<br>1230 | L<br>L<br>D | 5400<br>5401<br>5402 | 887/3<br>1143/3<br>324/10 |
| 39 | 〃 | 8 | 1250 | 1300～<br>1800 | L<br>L<br>D | 5403<br>5404<br>5405 | 784/3<br>1172/3<br>310/10 |

(Continued)

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mgC/hr/m³ | Average counts/m |
|---|---|---|---|---|---|---|---|
| 111570 | 3582/3 | 1194 | 1175 | 5 | 1167 | 1.148 | 1.053 |
| 112516 | 3002/3 | 1001 | 982 | | 974 | 0.958 | |
| 〃 | 269/10 | 27 | 8 | | | | |
| 113178 | 2004/3 | 668 | 649 | 5 | 629 | 0.619 | 0.625 |
| 112685 | 2042/3 | 681 | 660 | | 642 | 0.631 | |
| 〃 | 391/10 | 39 | 20(19) 18(21) | | | | |
| 112167 | 5169/3 | 1723 | 1702 | 5 | 1638 | 1.656 | 1.538 |
| 111543 | 4451/3 | 1484 | 1463 | | 1444 | 1.420 | |
| 〃 | 397/10 | 40 | 19 | | | | |
| 111045 | 3619/3 | 1206 | 1185 | 5 | 1165 | 1.146 | 1.107 |
| 〃 | 3383/3 | 1128 | 1107 | | 1086 | 1.068 | |
| 112182 | 481/10 | 42 | 21 | | | | |
| 112182 | 2846/3 | 949 | 928 | 5 | 901 | 0.887 | 0.796 |
| 111522 | 2292/3 | 764 | 743 | | 717 | 0.705 | |
| 〃 | 473/10 | 47 | 26 | | | | |
| 111098 | 3209/3 | 1070 | 1049 | 5 | 1024 | 1.007 | 1.108 |
| 〃 | 3821/3 | 1274 | 1253 | | 1228 | 1.208 | |
| 111684 | 461/10 | 46 | 25 | | | | |
| 111684 | 6288/3 | 2096 | 2075 | 5 | 2067 | 2.034 | 1.937 |
| 110707 | 5687/3 | 1895 | 1875 | | 1870 | 1.839 | |
| 〃 | 288/10or11 | 29 or 26 | 8 or 5 | | | | |
| 112010 | 2245/3 | 748 | 732 | 5 | 711 | 0.699 | 0.659 |
| 〃 | 1995/3 | 665 | 644 | | 628 | 0.618 | |
| 112487 | 374/10 | 37 | 16 | | | | |
| 112487 | 1480/3 | 493 | 472 | 5 | 457 | 0.450 | 0.399 |
| 112698 | 1169/3 | 390 | 369 | | 354 | 0.348 | |
| 〃 | 359/10 | 36 | 15 | | | | |
| 114730 | 1060/3 | 353 | 331 | 5 | 320 | 0.315 | 0.315 |
| 113733 | 1952/3 | 651 | 628 | | 617 | 0.607 | 0.607 |
| 〃 | 330/10 | 33 | 11 | | | | |
| 112347 | 1189/3 | 396 | 374 | 5 | 365 | 0.359 | 0.359 |
| 112727 | 691/3 | 230 | 208 | | 198 | 0.195 | 0.195 |
| 〃 | 318/10 | 32 | 10 | | | | |
| 111146 | 938/3 | 313 | 293 | 4 | 279 | 0.343 | 0.399 |
| 〃 | 1208/3 | 403 | 283 | | 369 | 0.454 | |
| 111009 | 343/10 | 34 | 14 | | | | |
| 111009 | 830/3 | 277 | 257 | 5 | 245 | 0.241 | 0.241 |
| 113353 | 1215/3 | 405 | 385 | | 379 | 0.367 | 0.367 |
| 〃 | 321/10 | 32 | 12 | | | | |

Table 17.

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 40 | 58°25′N<br>166°23′W | 11 | 1255 | 1324～<br>1824 | L<br>L<br>D | 5406<br>5407<br>5408 | 914/3<br>1013/3<br>378/10 |
| 41 | 57°48′N<br>162°04′W | 13 | 0600 | 0612～<br>1112 | L<br>L<br>D | 5409<br>5410<br>5411 | 6297/3<br>6045/3<br>471/3 |
| 42 | 56°50′N<br>163°04′W | 13 | 1245 | 1300～<br>1800 | L<br>L<br>D | 5412<br>5413<br>5414 | 16813/3<br>19267/3<br>1341/10 |
| 43 | 55°07′N<br>164°59′W | 14 | 0545 | 0600～<br>1100 | L<br>L<br>D | 5415<br>5416<br>5417 | 30735/3<br>37278/3<br>100276/10 |
| 44 | 54°20′N<br>164°53′W | 14 | 1250 | 1300～<br>1800 | L<br>L<br>D | 5418<br>5419<br>5420 | 5748/3<br>6638/3<br>715/10 |
| 45 | 54°04′N<br>161°12′W | 15 | 0550 | 0601～<br>1101 | L<br>L<br>D | 5421<br>5422<br>5423 | 8388/3<br>9344/3<br>740/10 |
| 46 | 54°18′N<br>159°50′W | 15 | 1250 | 1300～<br>1800 | L<br>L<br>D | 5424<br>5425<br>5426 | 2520/3<br>2481/3<br>469/10 |
| 47 | 54°22′N<br>157°19′W | 16 | 1250 | 1300～<br>1800 | L<br>L<br>D | 5427<br>5428<br>5429 | 1235/3<br>1335/3<br>530/10 |
| 48 | 55°01′N<br>153°58′W | 17 | 0600 | 0606～<br>1106 | L<br>L<br>D | 5430<br>5431<br>5432 | 3331/3<br>3903/3<br>691/10 |
| 49 | 55°11′N<br>152°51′W | 17 | 1255 | 1300～<br>1800 | L<br>L<br>D | 5433<br>5434<br>5435 | 2941/3<br>3131/3<br>741/10 |
| 50 | 56°46′N<br>145°49′W | 19 | 0630 | 0644～<br>1144 | L<br>L<br>D | 5436<br>5437<br>5438 | 3630/3<br>3678/3<br>493/10 |
| 51 | 57°41′N<br>133°47′W | 26 | 1255 | 1306～<br>1806 | L<br>L<br>D | 5439<br>5440<br>5441 | 73148/3<br>70349/3<br>1740/10 |
| 52 | 55°18′N<br>134°10′W | 27 | 0555 | 0605～<br>1105 | L<br>L<br>D | 5442<br>5443<br>5444 | 501/3<br>17434/3<br>831/10 |

(Continued)

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mgC/hr/m$^3$ | Average counts/m |
|---|---|---|---|---|---|---|---|
| 116216 | 924/3 | 308 | 288 | 5 | 271 | 0.267 | 0.283 |
| 〃 | 1024/3 | 341 | 321 | | 304 | 0.299 | |
| 120790 | 368/10 | 37 | 17 | | | | |
| 120790 | 6125/3 | 2042 | 2022 | 5 | 1886 | 1.855 | 1.833 |
| 118633 | 5987/3 | 1996 | 1976 | | 1840 | 1.810 | |
| 〃 | 467/3 | 156 | 136 | | | | |
| 119605 | 16517/3 | 5506 | 5486 | 5 | 5373 | 5.286 | 5.682 |
| 〃 | 18928/3 | 6309 | 6289 | | 6177 | 6.077 | |
| 118824 | 1326/10 | 133 | 113 | | | | |
| 118824 | 30393/3 | 10131 | 10111 | 5 | 140 | 0.138 | 0.138 |
| 117935 | 37141/3 | 12380 | 12360 | | 2389 | 2.350 | 2.350 |
| 〃 | 99906/10 | 9991 | 9971 | | | | |
| 118124 | 5718/3 | 1906 | 1886 | 5 | 1834 | 1.804 | 1.950 |
| 〃 | 6603/3 | 2201 | 2181 | | 2129 | 2.095 | |
| 116895 | 719/10 | 72 | 52 | | | | |
| 116895 | 8431/3 | 2810 | 2790 | 5 | 2737 | 2.693 | 2.824 |
| 119005 | 9226/3 | 3075 | 3055 | | 3002 | 2.954 | |
| 〃 | 731/10 | 73 | 53 | | | | |
| 112991 | 2621/3 | 873 | 856 | 5 | 824 | 0.811 | 0.805 |
| 〃 | 2580/3 | 860 | 843 | | 811 | 0.798 | |
| 112505 | 490/10 | 49 | 32 | | | | |
| 112505 | 1290/3 | 430 | 413 | 5 | 374 | 0.368 | 0.387 |
| 111865 | 1402/3 | 467 | 450 | | 412 | 0.405 | |
| 〃 | 557/10 | 56 | 39 | | | | |
| 111863 | 3499/3 | 1166 | 1149 | 5 | 1093 | 1.076 | 1.174 |
| 〃 | 4100/3 | 1367 | 1350 | | 1294 | 1.272 | |
| 111417 | 729/10 | 73 | 56 | | | | |
| 111417 | 3102/3 | 1034 | 1017 | 5 | 956 | 0.940 | 0.975 |
| 111000 | 3314/3 | 1105 | 1088 | | 1027 | 1.010 | |
| 〃 | 784/10 | 78 | 61 | | | | |
| 112654 | 3786/3 | 1262 | 1245 | 5 | 1211 | 1.192 | 1.200 |
| 〃 | 3836/3 | 1279 | 1262 | | 1228 | 1.208 | |
| 114056 | 508/10 | 51 | 34 | | | | |
| 114056 | 75357/3 | 25119 | 25102 | 5 | 24938 | 24.531 | 24.127 |
| 113415 | 72883/3 | 24294 | 24277 | | 24113 | 23.722 | |
| 113083 | 1808/10 | 181 | 164 | | | | |
| 113083 | 520/3 | 173 | 156 | 5 | 87 | 0.086 | 0.086 |
| 113501 | 18048/3 | 6016 | 5999 | | 5930 | 5.834 | 5.834 |
| 〃 | 860/10 | 86 | 69 | | | | |

Table 17.

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 53 | 54°16′N<br>133°43′W | 27 | 1255 | 1302～<br>1902 | L<br>L<br>D | 5445<br>5446<br>5447 | 5799/3<br>6547/3<br>528/10 |
| 54 | 49°23′N<br>126°55′W | 29 | 0555 | 0610～<br>1110 | L<br>L<br>D | 5448<br>5449<br>5450 | 16388/3<br>15645/3<br>1624/10 |
| 55 | 48°55′N<br>125°48′W | 29 | 1255 | 1300～<br>1800 | L<br>L<br>D | 5451<br>5452<br>5453 | 33911/3<br>52747/4<br>538/3 |
| 56 | 48°29′N<br>139°43′W | Aug.<br>9 | 0555 | 0604～<br>1104 | L<br>L<br>D | 5454<br>5455<br>5456 | 2538/4<br>2570/4<br>250/10 |
| 57 | 48°25′N<br>141°19′W | 9 | 1255 | 1305～<br>1805 | L<br>L<br>D | 5457<br>5458<br>5459 | 5532/10<br>2885/3<br>429/10 |
| 58 | 48°06′N<br>148°39′W | 11 | 0545 | 0600～<br>1100 | L<br>L<br>D | 5460<br>5461<br>5462 | 3137/3<br>2613/3<br>444/10 |
| 59 | 48°00′N<br>149°52′W | 11 | 1245 | 1302～<br>1802 | L<br>L<br>D | 5463<br>5464<br>5465 | 2692/3<br>1841/3<br>712/10 |
| 60 | 47°25′N<br>157°23′W | 13 | 0550 | 0605～<br>1105 | L<br>L<br>D | 5466<br>5467<br>5468 | 2142/3<br>4686/6<br>503/11 |
| 61 | 45°23′N<br>164°25′W | 15 | 0555 | 0605～<br>1105 | L<br>L<br>D | 5472<br>5473<br>5474 | 2154/3<br>2053/3<br>613/10 |
| 62 | 45°16′N<br>165°50′W | 15 | 1250 | 1300～<br>1800 | L<br>L<br>D | 5475<br>5476<br>5477 | 2883/3<br>2032/3<br>707/10 |
| 63 | 44°06′N<br>168°40′W | 16 | 0545 | 0608～<br>1108 | L<br>L<br>D | 5478<br>5479<br>5480 | 2421/3<br>2683/3<br>802/10 |
| 64 | 43°20′N<br>170°03′W | 16 | 1245 | 1304～<br>1804 | L<br>L<br>D | 5486<br>5487<br>5488 | 3076/3<br>3089/3<br>782/10 |
| 65 | 42°15′N<br>177°53′E | 20 | 0545 | 0600～<br>1100 | L<br>L<br>D | 5494<br>5495<br>5496 | 3624/3<br>5837/5<br>896/21 |

(Continued)

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mgC/hr/m$^3$ | Average counts/m |
|---|---|---|---|---|---|---|---|
| 113860 | 5984/3 | 1995 | 1978 | 6 | 1940 | 1.591 | 1.696 |
| 〃 | 6756/3 | 2252 | 2235 | | 2197 | 1.801 | |
| 113848 | 545/10 | 55 | 38 | | | | |
| 113848 | 16914/3 | 5638 | 5621 | 5 | 5470 | 5.381 | 5.263 |
| 113538 | 1619/3 | 5397 | 5380 | | 5229 | 5.144 | |
| 〃 | 1681/10 | 168 | 151 | | | | |
| 113459 | 35119/3 | 11706 | 11687 | 5 | 11519 | 11.332 | 12.292 |
| 〃 | 54626/4 | 13656 | 13637 | | 13469 | 13.251 | |
| 112869 | 560/3 | 187 | 168 | | | | |
| 112869 | 2642/4 | 661 | 642 | 5 | 635 | 0.624 | 0.629 |
| 112810 | 2677/4 | 669 | 650 | | 643 | 0.633 | |
| 〃 | 260/10 | 26 | 7 | | | | |
| 113291 | 5738/10 | 574 | 555 | 5 | 529 | 0.520 | 0.520 |
| 〃 | 2992/3 | 997 | 978 | | 952 | 0.937 | 0.937 |
| 112501 | 448/10 | 45 | 26 | | | | |
| 112501 | 3276/3 | 1092 | 1073 | 5 | 1045 | 1.028 | 0.943 |
| 111464 | 2754/3 | 918 | 899 | | 871 | 0.857 | |
| 〃 | 468/10 | 47 | 28 | | | | |
| 112241 | 2818/3 | 939 | 920 | 5 | 865 | 0.851 | 0.851 |
| 〃 | 1927/3 | 642 | 623 | | 568 | 0.559 | 0.559 |
| 112477 | 744/10 | 74 | 55 | | | | |
| 112477 | 2238/3 | 746 | 727 | 5 | 698 | 0.687 | 0.720 |
| 113029 | 4871/6 | 812 | 793 | | 764 | 0.752 | |
| 〃 | 523/11 | 48 | 29 | | | | |
| 112949 | 2241/3 | 747 | 728 | 5 | 683 | 0.672 | 0.654 |
| 113182 | 2131/3 | 710 | 691 | | 646 | 0.636 | |
| 〃 | 636/10 | 64 | 45 | | | | |
| 112435 | 3013/3 | 1004 | 985 | 5 | 930 | 0.915 | 0.915 |
| 〃 | 2124/3 | 708 | 689 | | 634 | 0.624 | 0.624 |
| 112233 | 740/10 | 74 | 55 | | | | |
| 112233 | 2535/3 | 845 | 826 | 5 | 761 | 0.749 | 0.793 |
| 112478 | 2803/3 | 934 | 915 | | 850 | 0.836 | |
| 〃 | 838/10 | 84 | 65 | | | | |
| 112700 | 3207/3 | 1069 | 1050 | 5 | 988 | 0.972 | 0.974 |
| 112850 | 3216/3 | 1073 | 1054 | | 992 | 0.976 | |
| 〃 | 814/10 | 81 | 62 | | | | |
| 112729 | 3777/3 | 1259 | 1240 | 5 | 1214 | 1.194 | 1.137 |
| 110707 | 5718/5 | 1144 | 1127 | | 1098 | 1.080 | |
| 〃 | 951/21 | 45 | 28(17)<br>26(19) | | | | |

Table 17.

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 66 | 42°16′ N<br>176°52′ E | 20 | 1245 | 1300～<br>1800 | L<br>L<br>D | 5497<br>5498<br>5499 | 3432/3<br>2453/3<br>657/10 |
| 67 | 42°23′ N<br>164°41′ E | 23 | 0545 | 0600～<br>1100 | L<br>L<br>D | 5510<br>5511<br>5512 | 11508/3<br>14630/4<br>430/7 |
| 68 | 42°46′ N<br>163°16′ E | 23 | 1245 | 1300～<br>1800 | L<br>L<br>D | 5516<br>5517<br>5518 | 8142/3<br>8005/3<br>1066/9 |
| 69 | 43°40′ N<br>154°47′ E | 25 | 0545 | 0616～<br>1116 | L<br>L<br>D | 5522<br>5523<br>5524 | 4655/3<br>5261/3<br>805/10 |
| 70 | 41°57′ N<br>145°02′ E | 28 | 0555 | 0600～<br>1100 | L<br>L<br>D | 5531<br>5532<br>5533 | 10159/5<br>8539/4<br>766/10 |
| 71 | 41°53′ N<br>143°56′ E | 28 | 1245 | 1304～<br>1804 | L<br>L<br>D | 5534<br>5535<br>5536 | 4869/4<br>5836/4<br>812/6 |

(Continued)

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mgC/hr/m$^3$ | Average counts/m |
|---|---|---|---|---|---|---|---|
| 109439 | 3686/3 | 1229 | 1212 | 5 | 1158 | 1.139 | 1.139 |
| 〃 | 2634/3 | 878 | 861 | | 807 | 0.794 | 0.794 |
| 109360 | 706/10 | 71 | 54 | | | | |
| 113102 | 11955/3 | 3985 | 3968 | 5 | 3921 | 3.857 | 3.777 |
| 112446 | 15288/4 | 3822 | 3805 | | 3758 | 3.697 | |
| 〃 | 449/7 | 64 | 47 | | | | |
| 112580 | 8498/3 | 2833 | 2816 | 5 | 2709 | 2.665 | 2.643 |
| 112458 | 8364/3 | 2788 | 2771 | | 2664 | 2.621 | |
| 〃 | 1114/9 | 124 | 107 | | | | |
| 113919 | 4801/3 | 1600 | 1583 | 5 | 1517 | 1.493 | 1.597 |
| 113752 | 5434/3 | 1811 | 1794 | | 1728 | 1.700 | |
| 〃 | 832/10 | 83 | 66 | | | | |
| 113979 | 10473/5 | 2095 | 2072 | 5 | 2016 | 1.983 | 2.044 |
| 113131 | 8869/4 | 2217 | 2194 | | 2138 | 2.104 | |
| 113979 | 790/10 | 79 | 56 | | | | |
| 113733 | 5030/4 | 1258 | 1235 | 5 | 1118 | 1.100 | 1.223 |
| 〃 | 6029/4 | 1507 | 1484 | | 1367 | 1.345 | |
| 113852 | 838/6 | 140 | 117 | | | | |

2. Phytoplankton photosynthetic activity under various light intensities
(各光度に於ける植物プランクトン光合成活動度)

Experiments were carried out at 15 stations.

Experiments were made only on the surface samples.

Five different kinds of experimental bottles in respect of light intensities were prepared, i.e., receiving 100 %, 50 %, 25 %, 10 % and 0 % (dark) of full light. This was made by covering with sheets of metal sieves, instead of neutral filters, in order to save costs.

Other procedures of experiments were the same as in Exp. 1.

The experiments on board were made by T. Kawamura, and counting of radioactivity was made by M. S. Dody, University of Hawaii.

Table 18. Data on phytoplankton photosynthetic activity under various light intensity in

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 1 | 43°13′N 151°05′E | June 9 | 0550 | 0623 ~1123 | 100% | 5235 | 9837/3 |
| | | | | | 50 | 5236 | 8439/3 |
| | | | | | 25 | 5237 | 4462/3 |
| | | | | | 10 | 5238 | 1609/3 |
| | | | | | Dark | 5239 | 1034/10 |
| 2 | 50°09′N 170°00′E | 15 | 0555 | 0615 ~1115 | 100% | 5269 | 1680/3 |
| | | | | | 50 | 5270 | 1510/3 |
| | | | | | 25 | 5271 | 803/3 |
| | | | | | 10 | 5272 | 212/3 |
| | | | | | Dark | 5273 | 241/10 |
| 3 | 54°56′N 170°10′E | 17 | 0550 | 0608 ~1108 | 100% | 5286 | 2318/3 |
| | | | | | 50 | 5287 | 1448/3 |
| | | | | | 25 | 5288 | 734/3 |
| | | | | | 10 | 5289 | 1538/3 |
| | | | | | Dark | 5290 | 339/10 |
| 4 | 57°00′N 173°19′E | 18 | 0645 | 0708 ~1208 | 100% | 5297 | 4063/3 |
| | | | | | 50 | 5298 | 2198/3 |
| | | | | | 25 | 5299 | 590/3 |
| | | | | | 10 | 5300 | 321/3 |
| | | | | | Dark | 5301 | 330/10 |
| 5 | 57°00′N 174°50′E | 18 | 1255 | 1335 ~1835 | 100% | 5305 | 2001/3 |
| | | | | | 50 | 5306 | 1358/3 |
| | | | | | 25 | 5307 | 545/3 |
| | | | | | 10 | 5308 | 224/3 |
| | | | | | Dark | 5309 | 457/10 |
| 6 | 48°24′N 173°11′W | 26 | 0715 | 0740 ~1240 | 100% | 5328 | 1701/3 |
| | | | | | 50 | 5329 | 1201/3 |
| | | | | | 25 | 5330 | 602/3 |
| | | | | | 10 | 5331 | 159/3 |
| | | | | | Dark | 5327 | 270/10 |
| 7 | 48°22′N 172°00′W | 26 | 1250 | 1315 ~1815 | 100% | 5336 | 1750/3 |
| | | | | | 50 | 5337 | 942/3 |
| | | | | | 25 | 5338 | 246/3 |
| | | | | | 10 | 5339 | 159/3 |
| | | | | | Dark | 5340 | 565/10 |
| 8 | 53°09′N 172°00′W | 28 | 0555 | 0619 ~1119 | 100% | 5344 | 2267/3 |
| | | | | | 50 | 5345 | 1737/3 |
| | | | | | 25 | 5346 | 927/3 |
| | | | | | 10 | 5347 | 260/3 |
| | | | | | Dark | 5348 | 368/10 |

the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mg C/hr/$m^3$ |
|---|---|---|---|---|---|---|
| 123481 | 9361/3 | 3120 | 3089 | | 3021 | 2.972 |
| 123079 | 8056/3 | 2685 | 2654 | | 2586 | 2.544 |
| 〃 | 4260/3 | 1420 | 1389 | 5 | 1321 | 1.299 |
| 122521 | 1543/3 | 514 | 483 | | 415 | 0.408 |
| 〃 | 992/10 | 99 | 68 | | | |
| 116105 | 1700/3 | 567 | 547 | | 542 | 0.533 |
| 115615 | 1535/3 | 512 | 492 | | 487 | 0.479 |
| 〃 | 816/3 | 272 | 252 | 5 | 247 | 0.243 |
| 115637 | 215/3 | 72 | 52 | | 47 | 0.046 |
| 〃 | 245/10 | 25 | 5 | | | |
| 116307 | 2342/3 | 781 | 761 | | 747 | 0.735 |
| 〃 | 1463/3 | 731 | 711 | | 697 | 0.446 |
| 116043 | 743/3 | 248 | 228 | 5 | 214 | 0.211 |
| 〃 | 1557/3 | 519 | 499 | | 485 | 0.477 |
| 116323 | 342/10 | 34 | 14 | | | |
| 115776 | 4125/3 | 1375 | 1353 | | 1341 | 1.319 |
| 114485 | 2256/3 | 752 | 730 | | 718 | 0.706 |
| 〃 | 606/3 | 202 | 180 | 5 | 168 | 0.165 |
| 113913 | 331/3 | 110 | 88 | | 76 | 0.075 |
| 〃 | 340/10 | 34 | 12 | | | |
| 114253 | 2058/3 | 686 | 664 | | 639 | 0.629 |
| 112053 | 1424/3 | 475 | 453 | | 428 | 0.421 |
| 〃 | 571/3 | 190 | 168 | 5 | 143 | 0.141 |
| 114207 | 230/3 | 77 | 55 | | 30 | 0.030 |
| 〃 | 470/10 | 47 | 25 | | | |
| 114760 | 1742/3 | 581 | 560 | | 554 | 0.545 |
| 〃 | 1230/3 | 410 | 389 | | 383 | 0.377 |
| 112031 | 631/3 | 210 | 191 | 5 | 185 | 0.182 |
| 〃 | 168/3 | 56 | 37 | | 31 | 0.030 |
| 114391 | 277/10 | 28 | 6 | | | |
| 110986 | 1853/3 | 618 | 599 | | 558 | 0.549 |
| 〃 | 997/3 | 332 | 313 | | 272 | 0.268 |
| 112639 | 257/3 | 86 | 67 | 5 | 26 | 0.026 |
| 〃 | 167/3 | 55 | 36 | | − 5 | −0.005 |
| 111134 | 597/10 | 60 | 41 | | | |
| 112404 | 2370/3 | 790 | 771 | | 751 | 0.739 |
| 〃 | 1816/3 | 605 | 586 | | 566 | 0.557 |
| 113200 | 962/3 | 321 | 302 | 5 | 282 | 0.277 |
| 〃 | 270/3 | 90 | 71 | | 51 | 0.050 |
| 111570 | 388/10 | 39 | 20 | | | |

Table 18.

| Station | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet | Raw counts in various minutes |
|---|---|---|---|---|---|---|---|
| | | | Sampling | Incubation | | | |
| 9 | 53°31′N<br>171°55′W | June<br>28 | 1245 | 1309<br>~1809 | 100%<br>50<br>25<br>10<br>Dark | 5352<br>5353<br>5354<br>5355<br>5356 | 2640/3<br>1517/3<br>654/3<br>209/3<br>346/10 |
| 10 | 60°14′N<br>173°24′W | July<br>6 | 0600 | 0614<br>~1114 | 100%<br>50<br>25<br>10<br>Dark | 5384<br>5385<br>5386<br>5387<br>5388 | 1221/3<br>759/3<br>271/3<br>158/3<br>442/10 |
| 11 | 61°01′N<br>173°24′W | 6 | 1245 | 1309<br>~1809 | 100%<br>50<br>25<br>10<br>Dark | 5392<br>5393<br>5394<br>5395<br>5396 | 796/3<br>627/3<br>157/3<br>103/3<br>281/10 |
| 12 | 44°06′N<br>168°40′W | Aug.<br>16 | 0545 | 0600<br>~1100 | 100%<br>50<br>25<br>10<br>Dark | 5481<br>5482<br>5483<br>5484<br>5485 | 2140/3<br>1655/3<br>988/5<br>661/10<br>410/10 |
| 13 | 43°20′N<br>170°03′W | 16 | 1245 | 1304<br>~1804 | 100%<br>50<br>25<br>10<br>Dark | 5489<br>5490<br>5491<br>5492<br>5493 | 2369/3<br>1364/3<br>1124/7<br>655/10<br>725/10 |
| 14 | 42°19′N<br>174°08′E | 21 | 0545 | 0605<br>~1105 | 100%<br>50<br>25<br>10<br>Dark | 5500<br>5501<br>5502<br>5503<br>5504 | 3605/3<br>1847/4<br>1158/6<br>1015/13<br>454/10 |
| 15 | 42°19′N<br>172°52′E | 21 | 1250 | 1303<br>~1803 | 100%<br>50<br>25<br>10<br>Dark | 5505<br>5506<br>5507<br>5508<br>5509 | 1773/3<br>1167/4<br>1146/9<br>930/10<br>559/7 |

(Continued)

| Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mg C/hr/m$^3$ |
|---|---|---|---|---|---|---|
| 111464 | 2783/3 | 928 | 909 | | 892 | 0.877 |
| 〃 | 1599/3 | 533 | 514 | | 497 | 0.489 |
| 112260 | 685/3 | 228 | 209 | 5 | 192 | 0.189 |
| 〃 | 219/3 | 73 | 54 | | 37 | 0.036 |
| 113178 | 359/10 | 36 | 17 | | | |
| 111830 | 1283/3 | 428 | 407 | | 383 | 0.377 |
| 〃 | 797/3 | 266 | 245 | | 221 | 0.217 |
| 115487 | 276/3 | 92 | 70 | 5 | 47 | 0.047 |
| 〃 | 161/3 | 54 | 32 | | 9 | 0.009 |
| 114730 | 453/10 | 45 | 24or23 | | | |
| 113344 | 825/3 | 275 | 253 | | 246 | 0.242 |
| 〃 | 650/3 | 217 | 195 | | 188 | 0.185 |
| 112504 | 164/3 | 55 | 33 | 5 | 26 | 0.026 |
| 〃 | 108/3 | 36 | 14 | | 7 | 0.007 |
| 112347 | 294/10 | 29 | 7 | | | |
| 112885 | 2227/3 | 742 | 723 | | 699 | 0.688 |
| 〃 | 1723/3 | 574 | 555 | | 531 | 0.522 |
| 112431 | 1032/3 | 207 | 188 | 5 | 164 | 0.161 |
| 〃 | 691/10 | 69 | 50 | | 26 | 0.026 |
| 112700 | 427/10 | 43 | 24 | | | |
| 113144 | 2460/3 | 820 | 801 | | 744 | 0.732 |
| 〃 | 1416/3 | 472 | 453 | | 396 | 0.390 |
| 113048 | 1168/7 | 167 | 148 | 5 | 91 | 0.090 |
| 〃 | 681/10 | 68 | 49 | | − 8 | −0.008 |
| 112729 | 756/10 | 76 | 57 | | | |
| 109360 | 3873/3 | 1291 | 1274 | | 1242 | 1.222 |
| 108822 | 1994/4 | 499 | 482 | | 450 | 0.443 |
| 〃 | 1250/6 | 208 | 191 | 5 | 159 | 0.156 |
| 109583 | 1088/13 | 84 | 67 | | 35 | 0.034 |
| 〃 | 487/10 | 49 | 32 | | | |
| 112493 | 1852/3 | 619 | 600 | | 534 | 0.526 |
| 〃 | 1219/4 | 305 | 288 | | 222 | 0.218 |
| 113401 | 1187/9 | 132 | 115 | 5 | 49 | 0.048 |
| 〃 | 964/10 | 96 | 79 | | 13 | 0.013 |
| 113102 | 581/7 | 83 | 66 | | | |

3. Difference of photosynthetic activity between samples filtered with fine mesh bolting silk and samples not filtered (細目篩絹濾過試料と未濾過試料の光合成活動度の差)

Two liters of surface water were collected with a plastic bucket at 7 stations.

Of this water 750 cc were poured into two light bottles and one dark bottle which was placed in the incubator after adding $C^{14}$ radioactive isotope.

Of this water another 750 cc were filtered with a fine mesh bolting silk cloth, XX 13, having approximately 0.11 mm mesh aperture, and then placed in the incubator in the same way.

The difference of radioactivity of the organisms after exposure between the above two series of bottles will give an idea as to the ratio of activity of chlorophyll-bearing nannoplankton which passed through 0.11 mm mesh aperture to that of the phytoplankton retained on the fine bolting silk cloth 0.01 mm mesh.

Table 19. Data on difference of photosynthetic activity between samples filtered with Bering Sea and North Pacific in June–August 1960

| No. of experiment | Difference | Position | Ship's date | Ship's time | | No. of bottle | No. of planchet |
|---|---|---|---|---|---|---|---|
| | | | | Sampling | Incubation | | |
| 1 | Filtered | 43°40′N<br>152°07′E | June 9 | 1255 | 1308<br>~1808 | L<br>L<br>D | 5243<br>5244<br>5242 |
| | Unfiltered | 43°40′N<br>152°07′E | 9 | 1255 | 1308~<br>1808 | L<br>L<br>D | 5240<br>5241<br>5242 |
| 2 | Filtered | 48°40′N<br>159°38′E | 13 | 0555 | 0620<br>~1120 | L<br>L<br>D | 5257<br>5258<br>5259 |
| | Unfiltered | 48°40′N<br>159°36′E | 13 | 0555 | 0613~<br>1113 | L<br>L<br>D | 5254<br>5256<br>5257 |
| 3 | Filtered | 55°05′N<br>171°54′W | 29 | 1255 | 1310<br>~1810 | L<br>L<br>D | 5360<br>5361<br>5362 |
| | Unfiltered | 55°05′N<br>171°54′W | 29 | 1255 | 1310~<br>1810 | L<br>L<br>D | 5357<br>5358<br>5359 |
| 4 | Filtered | 47°25′N<br>157°23′W | Aug. 13 | 0550 | 0619<br>~1119 | L<br>L<br>D | 5469<br>5470<br>5471 |
| | Unfiltered | 47°25′N<br>157°23′W | 13 | 0550 | 0605~<br>1105 | L<br>L<br>D | 5466<br>5467<br>5468 |
| 5 | Filtered | 42°23′N<br>164°41′E | 23 | 0545 | 0600<br>~1100 | L<br>L<br>D | 5513<br>5514<br>5515 |
| | Unfiltered | 42°23′N<br>164°41′E | 23 | 0545 | 0600~<br>1100 | L<br>L<br>D | 5510<br>5511<br>5512 |
| 6 | Filtered | 42°46′N<br>163°16′E | 23 | 1245 | 1300<br>~1800 | L<br>L<br>D | 5519<br>5520<br>5521 |
| | Unfiltered | 42°46′N<br>163°16′E | 23 | 1245 | 1300~<br>1800 | L<br>L<br>D | 5516<br>5517<br>5518 |
| 7 | Filtered | 43°40′N<br>154°47′E | 25 | 0545 | 0616<br>~1116 | L<br>L<br>D | 5525<br>5526<br>5527 |
| | Unfiltered | 43°40′N<br>154°47′E | 25 | 0545 | 0616~<br>1116 | L<br>L<br>D | 5522<br>5523<br>5524 |

fine mesh bolting silk and samples not filtered in the "Oshoro Maru" cruise 46 to the

| Raw counts in various minutes | Standard counts | Raw counts standzd. | Counts per min. | Counts/m minus bckgnd. | Time of incubation | Light minus dark | mgC/hr/m$^3$ | Average counts/m |
|---|---|---|---|---|---|---|---|---|
| 3766/3 | 122505 | 3612/3 | 1204 | 1173 | | 1173 | 1.154 | |
| 4186/3 | 124035 | 3965/3 | 1322 | 1291 | 5 | 1291 | 1.270 | 1.212 |
| 326/10 | 〃 | 309/10 | 31 | 0 | | | | |
| 5048/3 | 122785 | 4831/3 | 1610 | 1579 | | 1579 | 1.553 | |
| 4416/3 | 〃 | 4226/3 | 1408 | 1377 | 5 | 1377 | 1.355 | 1.450 |
| 326/10 | 122505 | 313/10 | 31 | 0 | | | | |
| 2371/3 | 122943 | 2266/3 | 755 | 724 | | 713 | 0.701 | |
| 2163/3 | 124146 | 2047/3 | 682 | 651 | 5 | 640 | 0.630 | 0.666 |
| 443/10 | 〃 | 419/10 | 42 | 11 | | | | |
| 3444/3 | 122535 | 3302/3 | 1101 | 1070 | | 1062 | 1.044 | |
| 3408/3 | 〃 | 3267/3 | 1089 | 1058 | 5 | 1050 | 1.033 | 1.039 |
| 410/10 | 122943 | 392/10 | 39 | 8 | | | | |
| 1430/3 | 112299 | 1496/3 | 499 | 478 | | 459 | 0.452 | |
| 1491/3 | 〃 | 1560/3 | 520 | 499 | 5 | 480 | 0.472 | 0.462 |
| 377/10 | 112167 | 395/10 | 40 | 19 | | | | |
| 1930/3 | 113178 | 2004/3 | 668 | 649 | | 629 | 0.619 | |
| 1958/3 | 112685 | 2042/3 | 681 | 660 | 5 | 642 | 0.631 | 0.625 |
| 375/10 | 〃 | 391/10 | 39 | 20(19) 18(21) | | | | |
| 1313/3 | 113254 | 1362/3 | 454 | 435 | | 421 | 0.414 | 0.414 |
| 1262/3 | 〃 | 1309/4 | 327 | 308 | 5 | 294 | 0.289 | 0.289 |
| 317/10 | 112949 | 330/10 | 33 | 14 | | | | |
| 2142/3 | 112477 | 2238/3 | 746 | 727 | | 698 | 0.687 | |
| 4686/6 | 113029 | 4871/6 | 812 | 793 | 5 | 764 | 0.752 | 0.720 |
| 503/11 | 〃 | 523/11 | 48 | 29 | | | | |
| 5510/3 | 112467 | 5757/3 | 1919 | 1902 | | 1850 | 1.820 | |
| 6097/3 | 〃 | 6370/3 | 2123 | 2106 | 5 | 2054 | 2.021 | 1.921 |
| 463/7 | 112580 | 483/7 | 69 | 52 | | | | |
| 11508/3 | 113102 | 11955/3 | 3985 | 3968 | | 3921 | 3.857 | |
| 14630/4 | 112446 | 15288/4 | 3822 | 3805 | 5 | 3758 | 3.697 | 3.777 |
| 430/7 | 〃 | 449/7 | 64 | 47 | | | | |
| 6010/3 | 112115 | 6299/3 | 2100 | 2083 | | 1925 | 1.894 | |
| 6422/3 | 〃 | 6731/3 | 2444 | 2227 | 5 | 2069 | 2.036 | 1.965 |
| 3890/23 | 113919 | 4012/23 | 174 | 157 | | | | |
| 8142/3 | 112580 | 8498/3 | 2833 | 2816 | | 2709 | 2.665 | |
| 8005/3 | 112458 | 8364/3 | 2788 | 2771 | 5 | 2664 | 2.621 | 2.643 |
| 1066/9 | 〃 | 1114/9 | 124 | 107 | | | | |
| 2574/3 | 113755 | 2762/3 | 921 | 904 | | 748 | 0.736 | |
| 4107/5 | 〃 | 4242/5 | 848 | 831 | 5 | 676 | 0.665 | 0.701 |
| 1840/11 | 113833 | 1899/11 | 173 | 156 | | | | |
| 4655/3 | 113919 | 4801/3 | 1600 | 1583 | | 1517 | 1.493 | |
| 5261/3 | 113752 | 5434/3 | 1811 | 1794 | 5 | 1728 | 1.700 | 1.597 |
| 805/10 | 〃 | 832/10 | 83 | 66 | | | | |

## 12. Data on Plankton Collected with a Fine Mesh Net
(細目ネット採集プランクトン記録)

Duplicate vertical hauls with a fine mesh net, 30 cm × 150 cm, conical, made of bolting silk XX 13, having approximately 0.11 mm mesh aperture, were carried out from about 100 meters depth to the surface at each hydrographic station.

Net was lowered by paying out wire cable until it reached 150 m depth, as calculated from wire angle.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

A series of duplicate samples was sent to the Hokkaido Regional Fisheries Research Laboratory in Yoichi for measurements of displacement volume and weight, and observations of composition.

Another series of duplicate samples was kept at the Plankton Laboratory of the University for later studies.

Displacement volume of the samples was measured by means of aspiration filtering apparatus, and wet weight of the samples was obtained by weighing the samples retained on the filter paper of this apparatus.

Dominant forms occurring in the samples were recorded.

The measurement was made at the Hokkaido Regional Fisheries Research Laboratory in Yoichi.

Table 20. Plankton data (30cm × 150cm, XX 13, fine mesh net) in the "Oshoro

| Station | | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Revolutions of flow-meter, TSK 193 | Volume of water filtered ($m^3$) |
|---|---|---|---|---|---|---|---|---|
| Os | 1 | 46°42′N 159°55′E | June 11 | 1030 | 104 | 16 | 155 | 1.6 |
| Os | 2 | 47°10′N 161°16′E | 11 | 2008 | 100 | 0 | 375 | 3.9 |
| Os | 3 | 48°09′N 164°02′E | 12 | 1950 | 110 | 25 | 450 | 4.7 |
| Os | 4 | 48°38′N 165°58′E | 13 | 0940 | 113 | 28 | 555 | 5.7 |
| Os | 5 | 49°06′N 167°33′E | 13 | 2020 | 100 | 0 | 不明 | |
| Os | 6 | 50°00′N 170°00′E | 14 | 2035 | 110 | 14 | 770 | 8.0 |
| Os | 7 | 52°00′N 170°10′E | 15 | 1915 | 110 | 16 | 655 | 6.8 |
| Os | 8 | 53°44′N 170°10′E | 16 | 0930 | 100 | 4 | 340 | 3.5 |
| Os | 9 | 55°00′N 170°30′E | 16 | 2050 | 105 | 12 | 490 | 5.1 |
| Os | 10 | 57°00′N 170°30′E | 17 | 1930 | 115 | 28 | 540 | 5.6 |
| Os | 11 | 57°00′N 175°03′E | 18 | 1445 | 110 | 12 | 400 | 4.1 |
| Os | 12 | 55°03′N 175°07′E | 19 | 2035 | 105 | 14 | 410 | 4.2 |
| Os | 13 | 53°00′N 175°05′E | 20 | 1955 | 100 | 7 | 353 | 3.7 |
| Os | 14 | 53°05′N 178°05′E | 21 | 1920 | 110 | 32 | 545 | 5.6 |
| Os | 15 | 52°40′N 179°48′W | 21 | 0920 | 135 | 45 | 750 | 7.8 |
| Os | 16 | 52°36′N 179°09′W | 21 | 1730 | 125 | 39 | 810 | 8.4 |
| Os | 17 | 52°54′N 178°54′W | 22 | 1420 | 100 | 9 | 450 | 4.7 |
| Os | 18 | 51°00′N 179°31′W | 23 | 2055 | 105 | 14 | 495 | 5.1 |
| Os | 19 | 49°58′N 179°32′W | 24 | 0450 | 100 | 9 | 不明 | |
| Os | 20 | 49°01′N 179°25′W | 24 | 1325 | 120 | 9 | 525 | 5.4 |
| Os | 21 | 48°16′N 179°32′W | 24 | 1918 | 105 | 19 | 400 | 4.1 |
| Os | 22 | 48°19′N 176°45′W | 25 | 0920 | 105 | 17 | 485 | 5.0 |
| Os | 23 | 48°25′N 175°11′W | 25 | 1915 | 105 | 35 | 510 | 5.2 |
| Os | 24 | 48°22′N 172°00′W | 26 | 1400 | 110 | 27 | 430 | 4.5 |
| Os | 25 | 48°59′N 171°59′W | 26 | 2125 | 110 | 28 | 470 | 4.9 |
| Os | 26 | 50°01′N 171°59′W | 27 | 0620 | 105 | 19 | 430 | 4.5 |
| Os | 27 | 51°16′N 171°56′W | 27 | 1730 | 100 | 35 | 548 | 5.6 |
| Os | 28 | 53°31′N 171°58′W | 28 | 0918 | 100 | 10 | 405 | 4.2 |
| Os | 29 | 55°30′N 171°52′W | 29 | 1600 | 105 | 15 | 503 | 5.2 |

Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

| Displacement volume per 1000m³ (cc) | Wet weight per 1000m³ of water (gr.) | Dominant species |
|---|---|---|
| 1125 | 438 | *Fragilaria* sp., *Chaetoceros concavicornis*, *Denticula* sp., *Coscinodiscus radiatus* |
| 516 | 387 | *Ch. concavicornis*, Copepods |
| 442 | 211 | *Ch. concavicornis*, Copepods, Copepoda nauplius |
| 175 | 140 | *Ch. concavicornis*, *Ch. convolutus*, Copepods, Copepoda naupilus |
| | | Copepods, *Ch. concavicornis*, *Corethron hystrix*, *Ch. convolutus* |
| 628 | 628 | *Ch. atlanticus*, *Ch. concavicornis* |
| 443 | 339 | Copepods, *Ch. atlanticus* |
| 370 | 712 | Copepods, *Corethron hystrix* |
| 690 | 592 | Copepods, Copepoda nauplius |
| 626 | 608 | Copepods, Copepoda nauplius |
| 749 | 990 | Copepods, Copepoda nauplius |
| 1014 | 991 | *Cosc. radiatus*, *Ch. densus* |
| | | |
| 621 | 514 | Copepods, Copepoda nauplius |
| 644 | 838 | *Cosc. radiatus* |
| 717 | 418 | *Cosc. radiatus*, Copepods, Copepoda nauplius |
| 601 | 579 | Copepods, Copepoda nauplius, *Cosc.* sp. *Cosc. radiatus* |
| 840 | 840 | *Ch. atlanticus*, Copepods, *Ch. concavicornis*, Copepoda nauplius |
| | | Copepods, Copepoda nauplius, *Cosc.* sp. |
| 387 | 553 | *Parafavella* sp., Copepods, Copepoda nauplius |
| 1570 | 1232 | Copepods, Copepoda nauplius |
| 398 | 279 | *Parafavella* sp. |
| 832 | 754 | *Parafavella* sp., Copepods, Copepoda nauplius |
| 225 | 202 | *Parafavella* sp., Copepoda nauplius, *Ch. concavicornis* |
| 309 | 309 | Copepods, Copepoda nauplius, *Parafavella* sp. |
| 854 | 764 | *Parafavella* sp., Copepoda nauplius |
| 529 | 529 | Copepods, Copepoda nauplius |
| 597 | 573 | Copepods, Copepoda nauplius |
| 384 | 499 | Copepods, Copepoda nauplius |

Table 20.

| Station | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Revolutions of flow-meter, TSK 193 | Volume of water filtered ($m^3$) |
|---|---|---|---|---|---|---|---|
| Os 30 | 56°00′N 171°44′W | June 30 | 1542 | 110 | 23 | 430 | 4.5 |
| Os 31 | 57°40′N 171°50′W | July 1 | 1625 | 90 | 9 | 285 | 2.9 |
| Os 32 | 57°41′N 174°25′W | 2 | 1735 | 110 | 25 | 660 | 6.8 |
| Os 33 | 58°59′N 173°32′W | 5 | 1810 | 125 | 37 | 630 | 6.5 |
| Os 34 | 61°01′N 173°24′W | 6 | 1145 | 70 | 19 | 250 | 2.6 |
| Os 35 | 61°00′N 171°39′W | 6 | 1925 | 50 | 9 | 185 | 1.9 |
| Os 36 | 59°58′N 170°00′W | 7 | 1310 | 45 | 7 | 162 | 1.7 |
| Os 37 | 59°25′N 169°12′W | 7 | 1840 | 40 | 20 | 112 | 1.2 |
| Os 38 | 58°43′N 167°54′W | 8 | 1840 | 40 | 13 | 140 | 1.5 |
| Os 39 | 58°25′N 166°23′W | 11 | 1308 | 40 | 13 | 122 | 1.3 |
| Os 40 | 58°10′N 164°42′W | 11 | 2109 | 40 | 8 | 100 | 1.0 |
| Os 41 | 57°46′N 162°01′W | 12 | 2010 | 35 | 0 | 35 | 0.4 |
| Os 42 | 56°50′N 163°04′W | 13 | 1310 | 65 | 2 | 150 | 1.6 |
| Os 43 | 56°04′N 163°56′W | 13 | 2110 | 80 | 7 | 180 | 1.9 |
| Os 44 | 55°07′N 164°59′W | 14 | 0548 | 104 | 18 | 335 | 3.5 |
| Os 45 | 54°05′N 163°34′W | 14 | 1835 | 102 | 10 | 380 | 3.9 |
| Os 46 | 54°15′N 160°40′W | 15 | 0900 | 100 | 6 | 382 | 4.0 |
| Os 47 | 54°14′N 158°37′W | 15 | 2005 | 103 | 10 | 325 | 3.4 |
| Os 48 | 54°39′N 156°02′W | 16 | 1910 | 100 | 7 | 340 | 3.5 |
| Os 49 | 55°07′N 153°25′W | 17 | 0920 | 109 | 24 | 440 | 4.6 |
| Os 50 | 55°54′N 149°24′W | 18 | 1100 | 115 | 30 | 642 | 6.6 |
| Os 51 | 56°52′N 145°22′W | 19 | 0915 | 104 | 17 | 540 | 5.6 |
| Os 52 | 48°14′N 146°32′W | Aug. 10 | 1618 | 103 | 14 | 410 | 4.2 |
| Os 53 | 43°09′N 170°30′W | 16 | 1608 | 120 | 7 | 450 | 4.7 |
| Os 54 | 42°09′N 179°42′W | 18 | 1610 | 108 | 22 | 370 | 3.8 |

Flow-meter calibration

Flow-meter: TSK 193

150–0 m exactly vertical haul

| | |
|---|---|
| 1045 | Revolutions |
| 1018 | 〃 |
| 1008 | 〃 |
| 1020 | 〃 |
| 1040 | 〃 |
| 1018 | 〃 |
| Mean 1025 | 〃 |

Mean revolutions for 100–0 m haul: 683

(Continued)

| Displacement volume per 1000m³ (cc) | Wet weight per 1000m³ of water (gr.) | Dominant species |
|---|---|---|
| 1124 | 674 | Copepods, Copepoda nauplius |
| 714 | 1020 | Copepoda nauplius, *Ch. concavicornis*, *Rhizosolenia hebetata* f. *semispina* |
| 1171 | 1215 | Copepods, Copepoda nauplius |
| 614 | 614 | *Cosc. radiatus*, Copepoda nauplius, Copepods |
| 579 | 232 | *Nitzschia seriata* |
| 524 | 576 | *Ceratium longipes* |
| 1190 | 2024 | *Cosc. radiatus* |
| 3448 | 2069 | *Ch. debilis* |
| 2069 | 1172 | *Cosc. curvatulus*, *Thal'rix longissima*, *Ceratium longipes*, *Ch. convolutus* |
| 1984 | 1587 | *Ch. compressus* |
| 3076 | 2500 | *Cosc. curvatulus* |
| 6389 | 4167 | *Cosc. curvatulus* |
| 1290 | 839 | *Ch. convolutus*, *Thal'rix longissima* |
| 538 | 323 | *Ptychocylis* sp., *Peridinium* sp., *Ch. convolutus*, Copepods |
| 721 | 432 | *Ch. debilis* |
| 765 | 230 | *Rh. hebetata* f. *semispina* |
| 253 | 380 | *Rh. hebetata* f. *semispina*, Copepoda nauplius |
| 536 | 625 | *Rh. alata*, *Rh. hebetata* f. *semispina* |
| 994 | 1108 | *Rh. alata* |
| 440 | 659 | *Rh. alata*, Copepods, Copepoda nauplius, *Rh. hebetata* f. *semispina* |
| 151 | 271 | *Nitzschia seriata*, *Rh. alata*, Copepods |
| 179 | 179 | *Rh. alata*, *Corethron hystrix* |
| 826 | 849 | *Rh. alata*. *Ch. convolutus*, *Ch. atlanticus* |
| 215 | 322 | *Cosc.* sp., Copepods, Copepoda nauplius |
| 262 | 550 | Copepods, Copepoda nauplius |

## 13. Data on Plankton Collected with a North Pacific Standard Net
(北太平洋標準ネット採集プランクトン記録)

Duplicate vertical hauls with a North Pacific Standard Net, 45 × 180 cm, conical, made of bolting silk GG 54, having approximately 0.33 mm mesh aperture, were carried out from about 150 meter depth to the surface at each hydrographic station.

Net was lowered by paying out cable until it reached 150 m depth, as calculated from wire angle.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

Unusual large organisms such as jellyfish were removed from the samples before they were submitted to weight mesurements and the number of these organisms was counted separately.

Wet weight of the samples was obtained by weighing the samples retained on the filter paper of aspiration filtering apparatus.

Dominant forms were recorded with their number of occurrences per 1000 $m^3$ of water.

Wet weight of each dominant form was also calculated. This was made by multiplying the number of animals by the number-weight coefficient. The number-weight coefficient was obtained by weighing 100 specimens for each dominant form.

**Number-weight coefficient**

*Calanus cristatus*, stage V: 1506 mg per 100 specimens (Mean body length and standard deviation: 8.3mm ± 0.58)

*Calanus plumchrus*, stage V: 315 mg per 100 specimens (Mean body length and standard deviation: 4.6 mm ± 0.12)

*Calanus finmarchicus, s. l.*, mixed with immature forms: 300 mg per 100 specimens (Mean body length and standard deviation: 2.9 mm ± 0.28)

*Metridia lucens*, adult: 112 mg per 100 specimens (Mean body length and standard deviation: 3.5 mm ± 0.18)

Euphausiids, mostly *Euphausia pacifica* and *Thysanoessa* spp., and amphipods were all picked up from each sample, and weighed.

The weighing of the samples was made at the Plankton Laboratory of the University.

The measurement of number-weight of each dominant form was made by K. Yamahana at the Plankton Laboratory.

Counting of individual numbers of dominant forms was made by K. Yamahana.

At the request of Dr. K. A. Brodsky, Zoological Institute of Academy of Sciences of USSR, Leningrad, specimens of *Calanus finmarchicus, s. l.* collected in the Aleutian region, Bering Sea and Gulf of Alaska were sent to him under the agreement of the Research Committee.

Table 21. Plankton data (45 cm × 180 cm, GG 54, NORPAC standard net) in the

| Station | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Estimated depth of haul (m) | Revolutions of flow meter TSK 234 | Volume of water filtered ($m^3$) | Wet weight of sample per 1000$m^3$ (gr) | Dominant organisms: *Calanus cristatus* Number | *Calanus cristatus* Weight | *Calanus plumchrus* Number | *Calanus plumchrus* Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Os 1 | 46°42′N | June 11 | 0900 | 153 | 12 | 149.6 | 1122 | 26.4 | 507.6 | | | | |
| | 159°55′E | 〃 | 1035 | 153 | 12 | 149.6 | 825 | 19.4 | 386.6 | 11030 | 166.1 | 18180 | 57.3 |
| Os 2 | 47°10′N | 〃 11 | 2015 | 150 | 0 | 150.0 | 790 | 18.6 | 247.3 | | | | |
| | 161°16′E | 〃 | 2040 | 150 | 0 | 150.0 | 815 | 19.2 | 266.3 | 3640 | 54.8 | 13990 | 44.1 |
| Os 3 | 48°09′N | 〃 12 | 2000 | 160 | 25 | 145.0 | 920 | 21.6 | 46.3 | | | | |
| | 164°02′E | 〃 | 2005 | 160 | 25 | 145.0 | 1000 | 23.5 | 136.2 | 2170 | 32.7 | 17890 | 56.4 |
| Os 4 | 48°38′N | 〃 13 | 0950 | 173 | 30 | 156.7 | 1550 | 36.4 | 35.7 | | | | |
| | 165°58′E | 〃 | 1000 | 173 | 28 | 152.6 | 1550 | 36.4 | 46.7 | 1020 | 15.3 | 3580 | 11.3 |
| Os 5 | 49°06′N | 〃 13 | 2025 | 150 | 7 | 149.0 | 855 | 20.0 | 10.0 | | | | |
| | 167°33′E | 〃 | 2040 | 150 | 7 | 149.0 | 850 | 19.9 | 45.2 | 50 | 0.8 | 2360 | 7.5 |
| Os 6 | 50°00′N | 〃 14 | 2045 | 170 | 24 | 163.9 | 1020 | 24.0 | 237.5 | | | | |
| | 170°00′E | 〃 | 2055 | 170 | 25 | 154.0 | 1465 | 34.4 | 287.8 | 350 | 5.3 | 47960 | 148.1 |
| Os 7 | 52°00′N | 〃 15 | 1920 | 160 | 18 | 152.2 | 1095 | 25.7 | 163.4 | | | | |
| | 170°10′E | 〃 | 1930 | 160 | 18 | 152.2 | 1095 | 25.7 | 214.0 | 350 | 5.3 | 19030 | 57.5 |
| Os 8 | 53°44′N | 〃 16 | 0945 | 170 | 8 | 168.0 | 1060 | 24.9 | 269.1 | | | | |
| | 170°10′E | 〃 | 0955 | 155 | 8 | 152.0 | 865 | 20.3 | 300.5 | 7590 | 114.3 | 15780 | 48.7 |
| Os 9 | 55°00′N | 〃 16 | 2055 | 160 | 17 | 153.0 | 1010 | 23.7 | 122.4 | | | | |
| | 170°30′E | 〃 | 2100 | 160 | 17 | 153.0 | 840 | 19.7 | 81.2 | 1680 | 25.2 | 5280 | 16.6 |
| Os 10 | 57°00′N | 〃 17 | 1945 | 165 | 23 | 151.8 | 1210 | 28.4 | 235.9 | 2490 | 37.4 | 10790 | 34.0 |
| | 170°30′E | 〃 | 1955 | 165 | 23 | 151.8 | 1200 | 28.2 | 290.8 | | | | |
| Os 11 | 57°00′N | 〃 18 | 1450 | 155 | 12 | 151.6 | 1090 | 25.6 | 375.0 | 2340 | 35.2 | 48670 | 153.3 |
| | 175°03′E | 〃 | 1500 | 155 | 12 | 151.6 | 1095 | 25.7 | 540.9 | | | | |
| Os 12 | 55°03′N | 〃 19 | 2040 | 155 | 11 | 152.0 | 930 | 21.8 | 674.3 | 20930 | 315.2 | 13010 | 41.0 |
| | 175°07′E | 〃 | 2055 | 155 | 14 | 152.0 | 612 | 14.4 | 319.4 | | | | |
| Os 13 | 53°00′N | 〃 20 | 2010 | 150 | 7 | 148.8 | 900 | 21.1 | 483.4 | 4300 | 64.8 | 54980 | 156.2 |
| | 175°05′E | 〃 | 2020 | 150 | 7 | 148.8 | 852 | 20.0 | 455.0 | | | | |
| Os 14 | 53°05′N | 〃 21 | 1930 | 160 | 25 | 144.9 | 1120 | 26.3 | 235.7 | 1220 | 18.4 | 49400 | 77.8 |
| | 178°05′E | 〃 | 1945 | 160 | 25 | 144.9 | 1080 | 25.4 | 594.5 | | | | |
| Os 15 | 52°40′N | 〃 21 | 0940 | 185 | 35 | 170.0 | 1650 | 38.8 | 216.5 | 130 | 2.0 | 45920 | 115.7 |
| | 179°48′W | 〃 | 0955 | 185 | 35 | 170.0 | 1610 | 37.8 | 108.5 | | | | |
| Os 16 | 52°36′N | 〃 21 | 1810 | 175 | 25 | 167.7 | 1770 | 41.6 | 355.8 | 8210 | 123.6 | 23810 | 22.5 |
| | 179°09′W | 〃 | 1830 | 175 | 25 | 167.7 | 1580 | 37.1 | 301.9 | | | | |
| Os 17 | 52°54′N | 〃 22 | 1430 | 155 | 15 | 149.6 | 1075 | 25.3 | 213.4 | 1850 | 27.9 | 4460 | 4.2 |
| | 178°54′W | 〃 | 1445 | 155 | 15 | 149.6 | 1035 | 24.3 | 209.9 | | | | |
| Os 18 | 51°00′N | 〃 23 | 2100 | 155 | 15 | 149.6 | 1000 | 23.5 | 289.3 | 4850 | 73.1 | 29650 | 9.3 |
| | 179°31′W | 〃 | 2110 | 155 | 11 | 152.0 | 1010 | 23.7 | 329.1 | | | | |
| Os 19 | 49°58′N | 〃 24 | 0505 | 150 | 8 | 148.5 | 843 | 19.8 | 106.1 | 200 | 3.0 | 20050 | 3.1 |
| | 179°32′W | 〃 | 0515 | 150 | 6 | 148.5 | 860 | 20.2 | 123.8 | | | | |
| Os 20 | 49°01′N | 〃 24 | 1335 | 155 | 18 | 147.4 | 1070 | 25.1 | 135.5 | 5370 | 80.6 | 11060 | 3.1 |
| | 179°25′W | 〃 | 1345 | 155 | 17 | 148.2 | 910 | 21.4 | 205.6 | | | | |

"Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

(individual number and weight in 1000m³)

| *Calanus finmarchicus* | | *Metridia lucens* | | Euphausiid | | *Parathemisto japonica* | *Euthemisto libellula* | *P. japonica* & *E. libellula* | Number of unusual large orgnisms removed before weighing (number in a haul) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Weight | Number | Weight | Number | Weight | Number | Number | Weight | *Eucalanus bungii* | *Sagitta* | Fish-larva | *Aglantha* | Others |
| | | | | | | | | | | | | 22 | |
| | | 5000 | 5.6 | 150 | 5.2 | 160 | | + | 38730 | 8650 | | 37 | 1 Jelly-fish |
| | | | | | | | | | | | | 22 | 1 Jelly-fish |
| | | 3430 | 3.9 | 130 | 4.5 | 690 | | 0.1 | 10140 | 7490 | | 23 | 1 Squid |
| | | | | | | | | | | | | 14 | 1 Jelly-fish |
| | | 2940 | 3.3 | 620 | 2.1 | 1020 | | 0.1 | 850 | 3040 | | 24 | 1 *Clione* |
| | | | | | | | | | | | | 24 | |
| | | | | 50 | 1.8 | 280 | | + | | 800 | | 17 | 1 *Tomopteris* |
| | | | | | | | | | | | | 6 | 2 *Tomopteris* |
| | | 250 | 0.3 | 200 | 3.7 | 350 | | + | | 760 | | 3 | 2 *Tomopteris* |
| | | | | | | | | | | | | | 2 Jelly-fish |
| | | | | | | | | | | | 1 | 6 | 1 *Tomopteris* |
| | | 3140 | 3.5 | 200 | 7.4 | 6050 | | 2.7 | 230 | 3430 | | 17 | 12 *Tomopteris* |
| | | | | | | | | | | | | 25 | |
| | | 40090 | 44.9 | 60 | 1.4 | 7330 | | 4.1 | 1040 | 2610 | | 21 | 1 Jelly-fish |
| | | | | | | | | | | | | 28 | |
| | | | | 100 | 0.2 | 840 | | 0.3 | 11730 | 840 | | 23 | |
| | | | | | | | | | | | | 65 | |
| | | 1070 | 1.2 | 740 | 3.0 | 1980 | | 1.3 | 4780 | 560 | 1 | 37 | |
| | | 430 | 0.5 | 510 | 5.3 | 890 | | 0.3 | 19310 | 670 | | 69 | |
| | | | | | | | | | | | | 83 | 1 *Tomopteris* |
| | | | | | | 200 | | + | 24020 | 900 | | 21 | 1 *Tomopteris* |
| | | | | | | | | | | | | 14 | |
| | | 3300 | 3.7 | 730 | 6.2 | 2610 | | 1.7 | 6230 | 8470 | | 15 | 1 Jelly-fish |
| | | | | | | | | | | | | 19 | 2 Jelly-fish |
| | | 2130 | 2.4 | 380 | 7.0 | 3700 | | 3.8 | 470 | 2130 | | 4 | 2 *Tomopteris* |
| | | | | | | | | | | | | 14 | |
| | | 7600 | 8.5 | 680 | 7.9 | 710 | | 0.1 | 1520 | 4410 | | 55 | 4 *Tomopteris* |
| | | | | | | | | | | | | 68 | 1 Jelly-fish |
| | | 1450 | 1.6 | 1380 | 7.4 | 5080 | | 1.5 | 3720 | 2270 | | | |
| 70 | + | 960 | 1.1 | 360 | 0.9 | 5340 | | 1.8 | 770 | 1610 | | | |
| | | | | | | | | | | | 2 | 4 | |
| | | | | 360 | 0.8 | 870 | | 2.6 | 1500 | 590 | | | |
| 260 | 0.2 | 6130 | 6.9 | 3560 | 8.5 | 2170 | | 4.2 | 130 | 20450 | | 5 | 1 *Tomopteris* |
| | | | | | | | | | | | 1 | 1 | 2 *Tomopteris* |
| | | | | | | | | | | | | 7 | 1 Jelly-fish |
| 50 | + | 100 | 0.1 | 160 | 0.4 | 150 | | + | 2580 | 1210 | | | 1 *Clione* |
| | | | | | | | | | | | | 3 | 2 Jelly-fish |
| | | 720 | 0.8 | 480 | 2.3 | 520 | | 0.1 | 4540 | 120 | | 11 | 3 *Tomopteris* |
| | | | | | | | | | | | | 11 | |

Table 21.

| Station | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Estimated depth of haul (m) | Revolutions of flow meter TSK 234 | Volume of water filtered ($m^3$) | Wet weight of sample per 1000$m^3$ (gr) | Dominant organisms | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | *Calanus cristatus* | | *Calanus plumchrus* | |
| | | | | | | | | | | Number | Weight | Number | Weight |
| Os 21 | 48°16′N | June 24 | 1925 | 150 | 8 | 148.5 | 805 | 19.0 | 363.2 | 12230 | 184.1 | 35240 | 11.0 |
| | 179°32′W | 〃 | 1932 | 150 | 8 | 148.5 | 820 | 19.3 | 72.5 | | | | |
| Os 22 | 48°19′N | 〃 25 | 1025 | 155 | 18 | 147.4 | 1090 | 25.6 | 93.7 | 480 | 7.2 | 14510 | 45.7 |
| | 176°45′W | 〃 | 1030 | 160 | 23 | 147.2 | 1060 | 24.9 | 176.7 | | | | |
| Os 23 | 48°25′N | 〃 25 | 1925 | 155 | 18 | 147.4 | 1128 | 26.5 | 317.0 | 480 | 7.2 | 80380 | 228.2 |
| | 175°11′W | 〃 | 1935 | 160 | 23 | 147.2 | 1250 | 29.4 | 227.9 | | | | |
| Os 24 | 48°22′N | 〃 26 | 1410 | 160 | 24 | 146.0 | 1175 | 27.6 | 155.8 | 2970 | 44.8 | 18970 | 59.8 |
| | 172°00′W | 〃 | 1418 | 160 | 23 | 147.2 | 1160 | 27.2 | 161.8 | | | | |
| Os 25 | 48°59′N | 〃 26 | 2135 | 155 | 19 | 146.5 | 1120 | 26.3 | 212.9 | 1384 | 20.8 | 16890 | 53.2 |
| | 171°59′W | 〃 | 2145 | 155 | 19 | 146.5 | 1230 | 28.9 | 214.5 | | | | |
| Os 26 | 50°01′N | 〃 27 | 0625 | 155 | 14 | 150.3 | 1060 | 24.9 | 309.2 | 8200 | 123.5 | 12380 | 39.0 |
| | 171°59′W | 〃 | 0635 | 155 | 14 | 150.3 | 1120 | 26.3 | 254.8 | | | | |
| Os 27 | 51°16′N | 〃 27 | 1807 | 155 | 19 | 146.5 | 1085 | 25.5 | 321.6 | 2200 | 30.1 | 56290 | 159.6 |
| | 171°56′W | 〃 | 1818 | 155 | 19 | 146.5 | 1110 | 26.0 | 326.9 | | | | |
| Os 28 | 53°31′N | 〃 28 | 0930 | 155 | 18 | 147.4 | 960 | 22.6 | 327.4 | 8270 | 124.5 | 34120 | 96.8 |
| | 171°58′W | 〃 | 0940 | 155 | 18 | 147.4 | 978 | 23.0 | 291.3 | | | | |
| Os 29 | 55°30′N | 〃 29 | 1610 | 150 | 10 | 147.6 | 995 | 23.4 | 213.7 | 430 | 6.4 | 53120 | 151.3 |
| | 171°52′W | 〃 | 1620 | 150 | 10 | 147.6 | 890 | 20.9 | 210.5 | | | | |
| Os 30 | 56°00′N | 〃 30 | 1555 | 165 | 24 | 149.5 | 1112 | 26.1 | 210.7 | 2950 | 44.4 | 23520 | 44.4 |
| | 171°44′W | 〃 | 1605 | 152 | 10 | 149.6 | 1020 | 24.0 | 504.2 | | | | |
| Os 31 | 57°40′N | July 1 | 1635 | 90 | 10 | 88.6 | 530 | 12.4 | 572.6 | 1450 | 21.9 | 77220 | 243.0 |
| | 171°50′W | 〃 | 1645 | 90 | 10 | 88.6 | 470 | 11.0 | 772.7 | | | | |
| Os 32 | 57°41′N | 〃 2 | 1745 | 165 | 30 | 142.9 | 1270 | 53.3 | 283.3 | 8900 | 134.1 | 20080 | 63.3 |
| | 174°25′W | 〃 | 1755 | 165 | 29 | 144.2 | 1310 | 30.8 | 172.1 | | | | |
| Os 33 | 58°59′N | 〃 5 | 1820 | 105 | 20 | 98.6 | 990 | 23.2 | 267.2 | 1340 | 20.1 | 29390 | 92.6 |
| | 173°32′W | 〃 | 1830 | 105 | 20 | 98.6 | 800 | 18.8 | 271.3 | | | | |
| Os 34 | 61°01′N | 〃 6 | 1150 | 75 | 25 | 67.9 | 525 | 12.3 | 73.2 | | | 80 | 0.3 |
| | 173°39′W | 〃 | 1155 | 75 | 20 | 70.4 | 505 | 11.9 | 92.4 | | | | |
| Os 35 | 61°00′N | 〃 6 | 1930 | 50 | 6 | 49.7 | 305 | 7.2 | 167.6 | | | | |
| | 170°00′W | 〃 | 1935 | 50 | 6 | 49.7 | 320 | 7.5 | 226.7 | | | | |
| Os 36 | 59°58′N | 〃 7 | 1320 | 40 | 10 | 39.4 | 225 | 5.3 | 94.3 | | | | |
| | 170°00′W | 〃 | 1325 | 40 | 4 | 39.9 | 240 | 5.6 | 107.1 | | | | |
| Os 37 | 59°25′N | 〃 7 | 1845 | 40 | 15 | 38.8 | 268 | 6.3 | 444.5 | 160 | 2.4 | | |
| | 169°12′W | 〃 | 1850 | 40 | 12 | 39.1 | 250 | 5.9 | 406.8 | | | | |
| Os 38 | 58°43′N | 〃 8 | 0845 | 40 | 14 | 38.8 | 290 | 6.8 | 132.4 | | | | |
| | 167°54′W | 〃 | 0850 | 40 | 16 | 38.4 | 275 | 6.5 | 107.7 | | | | |
| Os 39 | 58°25′N | 〃 11 | 1315 | 40 | 8 | 39.6 | 190 | 4.5 | 155.6 | | | | |
| | 166°23′W | 〃 | 1320 | 40 | 4 | 40.0 | 200 | 4.7 | 127.7 | | | | |
| Os 40 | 58°10′N | 〃 11 | 2113 | 40 | 3 | 40.0 | 230 | 5.4 | 277.8 | | | | |
| | 164°42′W | 〃 | 2118 | 40 | 2 | 40.0 | 210 | 4.9 | 326.5 | | | | |

(Continued)

(individual number and weight in 1000m³)

| *Calanus finmarchicus* | | *Metridia lucens* | | Euphausiid | | *Parathemisto japonica* | *Euthemisto libellula* | *P. japonica* & *E. libellula* | Number of unusual large orgnisms removed before weighing (number in a haul) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Weight | Number | Weight | Number | Weight | Number | Number | Weight | *Eucalanus bungii* | *Sagitta* | Fish-larva | *Aglantha* | Others |
| | | 630 | 0.7 | 210 | 0.5 | | | | 260 | 1530 | | 18 | 2 *Tomopteris* |
| | | | | | | | | | | | | 17 | |
| | | 120 | 0.1 | 430 | 1.0 | 160 | | + | 1720 | 1560 | | 6 | |
| | | | | | | | | | | | | 5 | |
| | | 380 | 0.4 | 260 | 0.6 | 600 | | + | 750 | 1700 | | 18 | |
| | | | | | | | | | | | | 23 | |
| | | 150 | 0.2 | 220 | 1.2 | 1270 | | 2.3 | 3840 | 1850 | | 22 | |
| | | | | | | | | | | | | 25 | 1 Squid |
| | | 4280 | 0.7 | 1450 | 10.7 | 1570 | | 2.6 | 1600 | 2410 | | 7 | 1 Squid<br>23 *Tomopteris* |
| | | | | | | | | | | | | 6 | 2 Squid<br>4 *Tomopteris* |
| | | 1370 | 1.1 | 160 | 0.4 | 640 | | + | 1050 | 2050 | | 7 | 2 *Tomopteris* |
| | | | | | | | | | | | | 2 | 1 Squid |
| | | 1570 | 1.6 | 470 | 1.1 | 390 | 470 | + | | 160 | | | 1 *Tomopteris*<br>1 Jelly-fish |
| | | | | 40 | 0.1 | 130 | | + | 880 | 4020 | | 2 | |
| 40 | + | 1410 | + | 850 | 2.0 | 210 | | + | | 3250 | | | |
| | | | | | | | | | | | | 1 | 2 *Tomopteris* |
| | | 2490 | 0.4 | 2030 | 4.9 | 730 | | 1.9 | 1380 | 6050 | | 13 | |
| | | | | | | | | | | | | 6 | |
| | | 8060 | 9.0 | | | | 490 | 7.7 | 480 | 650 | | 3 | |
| | | | | 280 | 0.7 | 450 | | 1.7 | 150 | 240 | | 1 | |
| 40 | + | 20950 | 5.9 | 220 | 4.5 | | 730 | 11.2 | 6030 | 690 | | 5 | 3 *Clione* |
| | | | | | | | | | | | | 4 | 2 Jelly-fish |
| 1630 | 1.5 | 160 | 0.2 | 890 | 11.4 | | 1140 | 7.8 | | 4630 | | | |
| 11310 | 10.2 | 140 | 0.2 | 420 | 14.6 | | 420 | 13.0 | | 20940 | | 3 | |
| 11690 | 10.5 | | | | | | 750 | 10.5 | | 5470 | | 4 | |
| | | | | | | | | | | | | 5 | |
| 950 | 0.9 | | | | | | | | | 16350 | | 4 | |
| | | | | | | | | | | | | 6 | 4 Jelly-fish |
| 160 | 0.2 | | | | | | | | | 2260 | | 2 | |
| | | | | | | | | | | | | 1 | |
| 9780 | 8.8 | | | | | | | | | 65330 | | | |
| 32560 | 29.3 | | | 1300 | 1.2 | | 190 | + | | 114150 | | 1 | |
| | | | | | | | | | | | | | 3 Jelly-fish |

Table 21.

| Station | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Estimated depth of haul (m) | Revolutions of flow meter TSK 234 | Volume of water filtered ($m^3$) | Wet weight of sample per 1000$m^3$ (gr) | Dominant organisms | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | *Calanus cristatus* | | *Calanus plumchrus* | |
| | | | | | | | | | | Number | Weight | Number | Weight |
| Os 41 | 57°46′ N | July 12 | 2015 | 41 | 0 | 41.0 | 235 | 5.5 | 400.0 | | | | |
| | 162°01′ W | 〃 | 2020 | 40 | 0 | 40.0 | 175 | 4.1 | 170.7 | | | | |
| Os 42 | 56°50′ N | 〃 13 | 1317 | 65 | 3 | 65.0 | 270 | 6.3 | 349.2 | | | | |
| | 163°04′ W | 〃 | 1322 | 65 | 3 | 65.0 | 270 | 6.3 | 333.3 | | | | |
| Os 43 | 56°04′ N | 〃 13 | 2115 | 82 | 4 | 82.0 | 365 | 8.6 | 23.3 | | | | |
| | 163°56′ W | 〃 | 2120 | 82 | 7 | 81.3 | 420 | 9.9 | 40.4 | | | | |
| Os 44 | 55°07′ N | 〃 14 | 0552 | 103 | 14 | 102.7 | 678 | 15.9 | 69.2 | 60 | 0.9 | 2840 | 8.9 |
| | 164°59′ W | 〃 | 0600 | 104 | 17 | 98.3 | 750 | 17.6 | 85.2 | | | | |
| Os 45 | 54°05′ N | 〃 14 | 1855 | 102 | 11 | 100.1 | 640 | 15.0 | 33.3 | | | | |
| | 163°34′ W | 〃 | 1910 | 102 | 10 | 100.7 | 608 | 14.3 | 21.0 | | | | |
| Os 46 | 54°15′ N | 〃 15 | 0910 | 151 | 9 | 149.0 | 895 | 21.0 | 261.9 | 290 | 4.3 | 23420 | 73.8 |
| | 160°40′ W | 〃 | 0918 | 151 | 8 | 149.5 | 843 | 19.8 | 237.4 | | | | |
| Os 47 | 54°14′ N | 〃 15 | 2015 | 155 | 15 | 149.6 | 860 | 20.2 | 237.6 | 990 | 14.9 | 36040 | 113.5 |
| | 158°37′ W | 〃 | 2025 | 155 | 15 | 149.6 | 820 | 19.3 | 253.9 | | | | |
| Os 48 | 54°39′ N | 〃 16 | 1915 | 152 | 10 | 149.5 | 865 | 20.3 | 354.7 | 490 | 7.4 | 87360 | 275.2 |
| | 156°02′ W | 〃 | 1922 | 152 | 9 | 149.5 | 850 | 20.0 | 395.0 | | | | |
| Os 49 | 55°07′ N | 〃 17 | 0930 | 160 | 20 | 150.2 | 1260 | 29.6 | 202.7 | 1350 | 20.4 | 24200 | 76.2 |
| | 153°25′ W | 〃 | 0940 | 162 | 23 | 149.0 | 1152 | 27.0 | 255.6 | | | | |
| Os 50 | 55°54′ N | 〃 18 | 1110 | 170 | 27 | 168.5 | 1102 | 25.9 | 258.7 | 190 | 2.9 | 8990 | 28.3 |
| | 149°24′ W | 〃 | 1118 | 173 | 30 | 150.0 | 1132 | 26.6 | 872.2 | | | | |
| Os 51 | 56°52′ N | 〃 19 | 0855 | 158 | 18 | 150.3 | 1097 | 25.8 | 7.8 | 40 | 0.6 | 390 | 1.2 |
| | 145°22′ W | 〃 | 0900 | 162 | 22 | 150.2 | 910 | 21.4 | 4.7 | | | | |
| Os 52 | 48°14′ N | Aug. 10 | 1630 | 156 | 16 | 149.9 | 1090 | 25.6 | 390.6 | 15140 | 228.0 | 44100 | 130.9 |
| | 146°32′ W | 〃 | 1637 | 156 | 16 | 149.9 | 920 | 21.6 | 304.8 | | | | |
| Os 53 | 43°09′ N | 〃 16 | 1613 | 150 | 7 | 148.8 | 825 | 19.4 | 108.2 | 5720 | 86.1 | 2370 | 7.5 |
| | 170°30′ W | 〃 | 1620 | 150 | 7 | 148.8 | 800 | 18.8 | 154.3 | | | | |
| Os 54 | 42°09′ N | 〃 18 | 1620 | 158 | 19 | 149.3 | 1040 | 24.4 | 94.3 | 210 | 3.1 | | |
| | 179°42′ W | 〃 | 1630 | 164 | 24 | 149.7 | 1120 | 26.3 | 148.3 | | | | |

Flow-meter calibration

Flow-meter: TSK 234

150–0 exactly vertical haul

| | |
|---|---|
| 1010 | Revolutions |
| 1019 | 〃 |
| 1019 | 〃 |
| 1011 | 〃 |
| 1019 | 〃 |
| Mean 1016 | 〃 |

(Continued)

| (individual number and weight in 1000m³) | | | | | | | | | Number of unusual large orgnisms removed before weighing (number in a haul) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Calanus finmarchicus* | | *Metridia lucens* | | Euphausiid | | *Parathemisto japonica* | *Euthemisto libellula* | *P. japonica* & *E. libellula* | *Eucalanus bungii* | *Sagitta* | Fish-larva | *Aglantha* | Others |
| Number | Weight | Number | Weight | Number | Weight | Number | Number | Weight | | | | | |
| 48780 | 43.9 | | | 1490 | 1.8 | | | | | 51690 | | | 2 Jelly-fish<br>3 Jelly-fish |
| 73780 | 66.4 | | | 8900 | 10.3 | | 1430 | 27.3 | | 1270 | | | |
| 19370 | 17.4 | 350 | 0.1 | | | | | | | 2090 | | | |
| 2020 | 1.8 | 9010 | 3.2 | 160 | 9.0 | 570 | | 0.1 | 1510 | | | | |
| | | 70 | 0.1 | 100 | 3.0 | | 70 | + | | 330 | | | |
| 190 | 0.2 | 1190 | 1.3 | 380 | 0.9 | 1050 | | 2.3 | 4760 | 1330 | | | |
| 400 | 0.4 | 1780 | | | | 550 | | 3.2 | | 7130 | | | |
| 150 | 0.1 | 390 | 0.4 | 100 | 0.2 | 150 | | 0.1 | 3170 | 3350 | | | 1 Squid<br>1 *Tomopteris* |
| 810 | 0.7 | 5540 | 6.2 | 240 | 5.9 | 2500 | | 6.6 | | 5710 | | | 1 Jelly-fish |
| 150 | 0.1 | | | 190 | 0.4 | 580 | | 2.3 | 7230 | 2860 | | | 1 Squid |
| 230 | 0.2 | 190 | 0.2 | 270 | 0.6 | 700 | | 2.6 | 120 | 970 | | | 1 Jelly-fish |
| 470 | 0.4 | 2500 | 2.8 | 80 | 2.6 | 570 | | 1.5 | 1020 | 2460 | | | |
| | | 310 | 0.4 | 50 | 0.2 | 160 | | + | 630 | 100 | | | 14 Jelly-fish |
| 980 | 0.9 | 40 | 0.1 | 250 | 0.6 | 290 | | + | 40 | 530 | | | |

## 14. Data on Plankton Collected with a Larva Net
(稚魚ネット採集プランクトン記録)

A larva net, 130 cm × 450 cm, conical, made of stramin in the anterior 300 cm and of bolting silk, GG 54, in the posterior 150 cm, was towed through the surface layer for ten minutes at a speed of about 2 knots at one hour after sunset daily while underway.

The length of towing line and towing speed were adjusted so as the whole circle of the mouth ring of the net sunk just below the sea surface. This differed from the method used in the previous cruise and from the cruise by the "Hokusei Maru" (p. 325).

Samplings were carried out at 39 stations.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

In addition to the above surface horizontal tow, the following three series of collections with the same type of the net were carried out at 4 stations. In these samplings, a trawl winch and warp, 24 mm in diameter, were used. 1) Vertical haul from about 300 m; 2) Oblique haul by paying out the warp down to 300 m and then retrieving it while the ship was in motion at low speed. The angle of warp was kept at 8°-48°; and 3) Horizontal haul through about 340-120 m zone using open-closing net equipped with a double releasing mechanism (Motoda, 1960. Mem. Fac. Fish., Hokkaido Univ., Vol. 7, No. 1/2, p. 83).

Fish larvae contained in the samples were picked up before the measurement of weight of mixed specimens.

Wet weight of the mixed samples was obtained by weighing the materials left on the filtering disc of the aspiration filtering apparatus.

The weighing of the samples was made at the Plankton Laboratory of the University.

Dominant forms occurring in the samples were recorded.

Recording of dominant forms in the surface samples was made by K. Machida, and that in the deep samples was made by M. Omori.

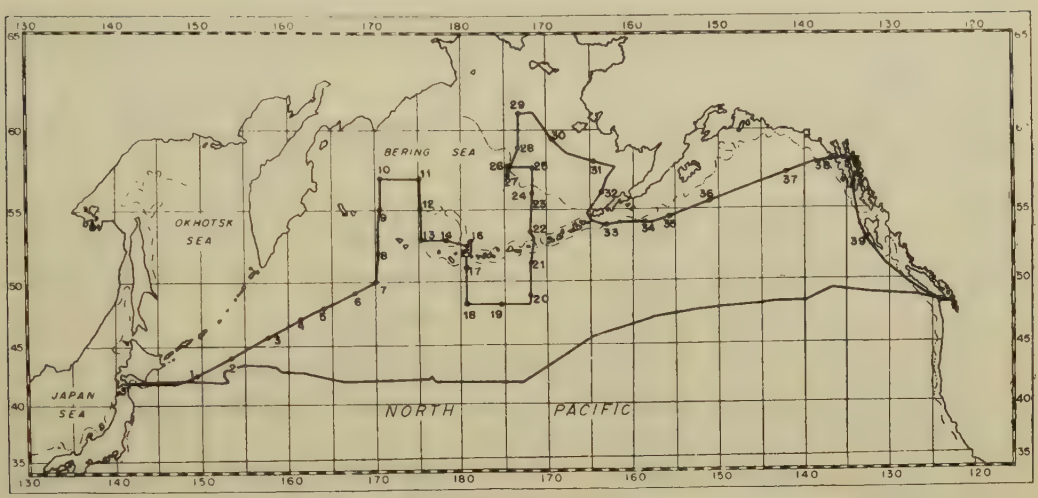



Fig. 20. Stations of larva net tow in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

Table 22. Plankton data (130 cm × 450 cm, larva net surface tow) in the "Oshoro

| No. of collection | Corresponding hyrdographic station | Position | Ship's date | Ship's time | Revolutions of flow-meter, Rig. 205 | Volume of water filtered ($m^3$) | Wet weight of sample per 1000 $m^3$ (gr) |
|---|---|---|---|---|---|---|---|
| 1 | | 42°37′N 149°29′E | June 8 | 1947~1957 | 5985 | 825.9 | 127.0 |
| 2 | | 44°06′N 153°16′E | 〃 9 | 2030~2040 | 4695 | 647.9 | 11.7 |
| 3 | | 45°43′N 157°45′E | 〃 10 | 2024~2034 | 5090 | 702.4 | 13.0 |
| 4 | | 47°10′N 161°16′E | 〃 11 | 2050~2100 | 5010 | 691.4 | 85.7 |
| 5 | Os 3 | 48°09′N 164°02′E | 〃 12 | 2010~2020 | 5550 | 765.9 | 43.9 |
| 6 | Os 5 | 49°06′N 167°33′E | 〃 13 | 2047~2057 | 5000 | 690.0 | 109.6 |
| 7 | Os 6 | 50°00′N 170°00′E | 〃 14 | 2150~2200 | 6720 | 927.4 | 193.4 |
| 8 | Os 7 | 52°00′N 170°10′E | 〃 15 | 1955~2005 | 4890 | 674.8 | 310.6 |
| 9 | Os 9 | 54°03′N 170°10′E | 〃 16 | 2105~2115 | 4445 | 613.4 | 198.9 |
| 10 | Os 10 | 57°00′N 170°30′E | 〃 17 | 2003~2013 | 6840 | 943.9 | 253.4 |
| 11 | Os 11 | 57°01′N 175°03′E | 〃 18 | 1735~1745 | 5180 | 714.8 | 184.7 |
| 12 | Os 12 | 55°03′N 175°07′E | 〃 19 | 2102~2112 | 4280 | 590.6 | 233.0 |
| 13 | Os 13 | 53°00′N 175°05′E | 〃 20 | 2040~2050 | 4390 | 661.0 | 49.3 |
| 14 | Os 14 | 53°05′N 178°05′W | 〃 21 | 2019~2029 | 5928 | 849.4 | 21.0 |
| 15 | Os 16 | 52°36′N 179°09′W | 〃 21 | 2124~2134 | 7320 | 1010.2 | 220.9 |
| 16 | Os 17 | 52°54′N 178°54′W | 〃 22 | 1603~1613 | 5130 | 707.9 | 19.5 |
| 17 | Os 18 | 51°00′N 179°31′W | 〃 23 | 2118~2128 | 4615 | 636.7 | 400.1 |
| 18 | Os 21 | 48°16′N 179°32′W | 〃 24 | 1941~1951 | 25770 | 3556.3 | 117.8 |
| 19 | Os 23 | 48°25′N 175°11′W | 〃 25 | 2050~2100 | 6130 | 845.7 | 128.1 |
| 20 | Os 25 | 48°59′N 171°59′W | 〃 26 | 2210~2220 | 5650 | 779.7 | 417.6 |
| 21 | | 51°36′N 172°09′W | 〃 27 | 2050~2100 | 4600 | 634.8 | 344.7 |
| 22 | Os 28 | 53°31′N 171°58′W | 〃 28 | 1357~1407 | 4480 | 618.2 | 287.3 |
| 23 | Os 29 | 55°30′N 171°52′W | 〃 29 | 2123~2133 | 5165 | 712.8 | 376.0 |
| 24 | Os 30 | 56°00′N 171°44′W | 〃 30 | 2118~2128 | 4500 | 621.0 | 1226.4 |
| 25 | Os 31 | 57°40′N 171°50′W | July 1 | 2105~2115 | 4700 | 1026.2 | 191.9 |

Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

| Dominant forms in samples | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a haul) | |
|---|---|---|---|
| | | *Aglantha* | Others |
| Diatoms, *Eucalanus bungii* | 1 | 424 | 9 jelly-fish |
| Diatoms | | 56 | 1 jelly-fish<br>2 jelly-fish |
| | | 3 | 6 squids |
| *Metridia lucens*, *Calanus cristatus*, Euphausiid, *Sagitta* sp. | | | 3 squids |
| *Calanus cristatus*, *Themisto* sp. | 3 | | 1 squid |
| *Sagitta* sp., *Pseudocalanus elongatus* | | | |
| *Calanus plumchrus*, *Metridia lucens* | 73 | 36 | 21 squids<br>16 *Clione* |
| *Calanus plumchrus*, *Themisto* sp. | 4 | | 8 squids |
| *Sagitta* sp., *Themisto* sp. | 13 | | 2 squids |
| *Calanus plumchrus*, *Themisto* sp. | 6 | | |
| *Calanus plumchrus* | | | |
| *Pseudocalanus elongatus* | 8 | | 1 jelly-fish<br>3 squids |
| *Themisto* sp. | 1 | 1 | 7 squids |
| *Calanus plumchrus*, *Themisto* sp. | 282 | 128 | 30 squids |
| *Themisto* sp., *Calanus plumchrus* | 136 | 8 | |
| *Calanus plumchrus* | 1 | 8 | |
| *Calanus plumchrus* | 8 | | 3 jelly-fish<br>10 squids |
| *Calanus plumchrus* | 1 | 2 | 2 squids |
| *Calanus plumchrus*, *Sagitta* sp. | 1 | 83 | 3 jelly-fish<br>17 squids |
| *Calanus plumchrus*, *Metridia lucens* | | 256 | 5 jelly-fish |
| *Calanus plumchrus*, *Themisto* sp. | 37 | | 6 squids |
| *Calanus plumchrus* | | | |
| *Themisto* sp., *Calanus plumchrus* | 7 | 4 | 1 jelly-fish<br>13 squids |
| *Calanus cristatus* | 2 | | |
| *Calanus plumchrus* | 7 | | |

Table 22.

| No. of collection | Corresponding hyrdographic station | Position | Ship's date | Ship's time | Revolutions of flow-meter, Rig. 205 | Volume of water filtered ($m^3$) | Wet weight of sample per 1000 $m^3$ (gr) |
|---|---|---|---|---|---|---|---|
| 26 | Os 32 | 57°41′N 174°25′W | July 2 | 2133～2138<br>2140～2150 | * 9270 | 1278.3 | 667.1 |
| 27 | | 57°21′N 174°46′W | 〃 4 | 1518～1528 | 4740 | 654.1 | 508.0 |
| 28 | Os 33 | 58°59′N 173°32′W | 〃 5 | 1947～1957 | 5850 | 808.3 | 6.8 |
| 29 | Os 35 | 61°00′N 171°39′W | 〃 6 | 2155～2205 | 5440 | 750.7 | 47.7 |
| 30 | Os 37 | 59°25′N 169°12′W | 〃 7 | 1910～1920 | 6178 | 852.6 | 20.6 |
| 31 | Os 40 | 58°10′N 164°24′W | 〃 11 | 2140～2150 | 5320 | 734.2 | 50.7 |
| 32 | Os 43 | 56°05′N 164°03′W | 〃 13 | 2145～2155 | ** 4000 | 552.0 | 6.9 |
| 33 | | 53°58′N 163°13′W | 〃 14 | 2115～2125 | 4085 | 664.3 | 186.1 |
| 34 | Os 47 | 54°14′N 158°37′W | 〃 15 | 2110～2120 | 4250 | 586.5 | 767.5 |
| 35 | Os 48 | 54°39′N 156°02′W | 〃 16 | 2015～2025 | 5295 | 730.7 | 621.9 |
| 36 | | 55°32′N 151°22′W | 〃 17 | 2030～2040 | 5262 | 726.2 | 640.0 |
| 37 | | 57°23′N 143°02′W | 〃 19 | 2015～2025 | 4152 | 573.0 | 192.7 |
| 38 | | 58°07′N 137°04′W | 〃 20 | 2034～2044 | 3885 | 536.1 | 58.9 |
| 39 | | 52°57′N 132°39′W | 〃 27 | 2230～2240 | 6500 | 897.0 | *** |

Flow-meter calibration

Flow-meter: Rig. 205

150–0 m exactly vertical haul

| | | |
|---|---|---|
| | 1410 | Revolutions |
| | 1440 | 〃 |
| | 1445 | 〃 |
| | 1420 | 〃 |
| Mean | 1437 | 〃 |

(Continued)

| Dominant forms in samples | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a haul) | |
|---|---|---|---|
| | | *Aglantha* | Others |
| *Calanus cristatus*, *Themisto* sp., *Calanus plumchrus* | 48 | | 9 squids |
| *Calanus plumchrus* | 4 | 3 | 1 jelly-fish |
| Crab larva zoea | | | |
| *Themisto* sp. | | | |
| | 174 | 90104 | |
| *Sagitta* sp., Diatoms | 20 | 56 | |
| *Acartia longiremis* | 4 | 16 | 3 jelly-fish |
| *Calanus finmarchicus* | 16 | | 3 squids<br>1 jelly-fish |
| *Calanus plumchrus* | 215 | | 2 squids |
| *Calanus plumchrus* | 128 | | 1 squids |
| *Calanus plumchrus* | 42 | | 27 squids<br>1 jelly-fish |
| *Calanus plumchrus* | | | 3 squids |
| Jelly-fish, Diatoms | | 8 | 12 jelly-fish |
| Jelly-fish, Diatoms | 4 | 12 | 28 jelly-fish |

* The tow was stopped for 2 minutes.

** Doubtful

*** Weighing was impossible on account of numerous jelly-fish in the sample.

Table 23. Plankton data (130 cm × 450 cm larva net; Oblique haul, vertical North Pacific in June–August 1960

| No. of collection | Corresponding hydrographic station | Position | | Ship's date | Ship's time | Haul | Length of wire run out (m) | Wire angle (degree) | Estimated depth of tow (m) | Revolutions of flow-meter, Rig. 205 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Os 11 | 57°00′N | 175°03′E | June 18 | 1757～1813 | Oblique | 300 | 8°～48° | 300～230 | 6100 |
| 2 | 〃 | 〃 | 〃 | 〃 | 1823～1919 | Horizontal | 350 | 25°～28° | 320～310 | 10060 |
| 3 | Os 17 | 52°54′N | 178°54′W | 〃 22 | 1305～1336 | Vertical | 350 | 15° | 340 | 7880 |
| 4 | 〃 | 〃 | 〃 | 〃 | 1500～1535 | Horizontal | 350 | 20°～45° | 330～250 | 18080 |
| 5 | Os 28 | 53°31′N | 171°58′W | 〃 28 | 0935～0950 | Vertical | 350 | 2° | 350 | 3900 |
| 6 | 〃 | 〃 | 〃 | 〃 | 1307～1327 | Horizontal | 350 | 15°～70° | 340～120 | 22125 |
| 7 | | 57°21′N | 174°46′W | July 4 | 1347～1402 | Vertical | 350 | 3°～8° | 350 | 4415 |
| 8 | | 〃 | 〃 | 〃 | 1414～1508 | Horizontal* | 350 | 25°～45° | 320～250 | 8470 |

Flow-meter calibration

Flow-meter: Rig. 205

150–0 m exactly vertical haul

| | |
|---|---|
| 1410 | Revolutions |
| 1440 | 〃 |
| 1445 | 〃 |
| 1420 | 〃 |
| Mean 1437 | 〃 |

haul, and deep horizontal haul) in the "Oshoro Maru" to the Bering Sea and

| Volume of water filtered ($m^3$) | Wet weight of sample per $1000^3$m (gr) | Dominant forms in samples | Number of fish-larvae | Unusual large organisms removed before weighing (Numbers in a haul) | |
|---|---|---|---|---|---|
| | | | | *Aglantha* | Others |
| 841.8 | 429.5 | | | | |
| 1388.3 | 267.4 | *Sagitta elegans* | 1 | 2 | 29 jelly-fish |
| 1087.4 | 204.8 | *Calanus plumchrus, Eucalanus bungii, Calanus cristatus* | | 49 | 1 jelly-fish<br>1 Squid |
| 2495.0 | 90.7 | *Eucalanus bungii* | | 208 | 1 Squid |
| 538.2 | 442.9 | *Calanus plumchrus, Calanus cristatus* | | 20 | 1 Squid |
| 3053.3 | 66.0 | *Calanus plumchrus, Calanus cristatus* | 1 | 2 | |
| 609.3 | 247.4 | *Eucalanus bungii, Calanus cristatus* | | 480 | |
| 1168.9 | 224.8 | | | | |

* Net was hauled without closing

## 15. Data on Plankton Collected with an Underway Plankton Catcher V
(航走採集器V型採集プランクトン記録)

An Underway Plankton Catcher V. (Fig. 21) (Motoda, 1960, Mem. Fac. Fish., Hokkaido Univ., Vol. 7, No. 1/2, p. 85) equipped with a conical net, GG 54, was towed through subsurface water at a speed of 7–9 knots for 30 minutes after about one hour after sunset daily while underway. The sampler was towed by means of wire cable, 6 mm in diameter, and retrieved with a hand winch. Wire cable of 50 m was run out (30 m long below the sea surface) and angles of cable were usually 65°–75°.

A flow-meter was mounted inside the sampler to register the quantity of water filtered by the net.

Samplings were carried out at 58 stations covering whole courses.

Fish larvae contained in the samples were picked up before the measurement of weight. The data on fish larvae are given on pp. 208–211.

Wet weight of the samples was obtained by weighing the materials left on the filtering disc of the aspiration filtering apparatus.

The weighing of the samples was made at the Plankton Laboratory of the University.

Dominant forms occurring in the samples were recorded.

Recording of dominant forms was made by M. Omori.

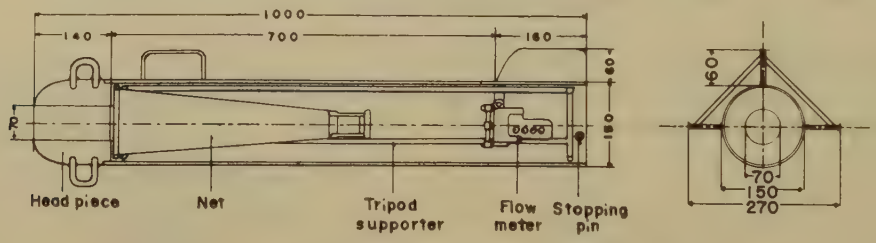



Fig. 21. High-speed underway plankton catcher, model V, used on the "Oshoro Maru" cruise 46 in June–August 1960

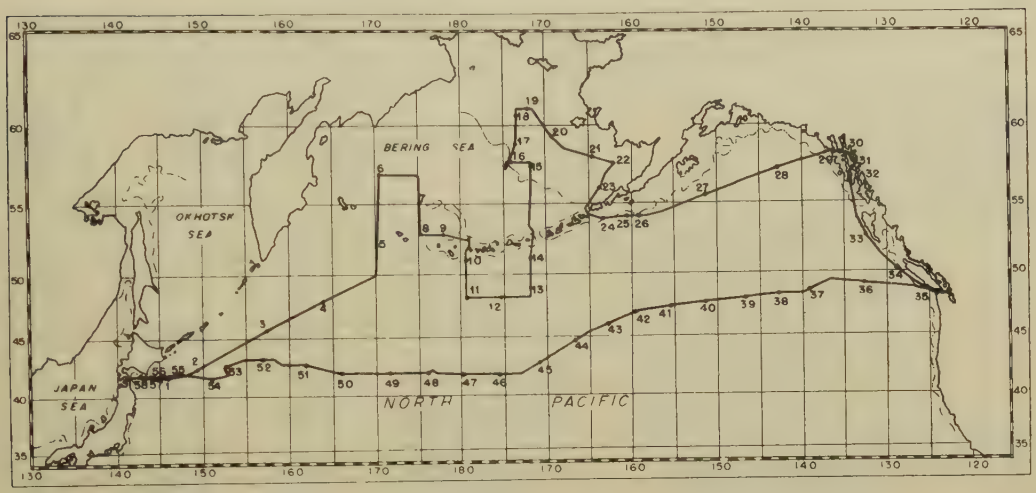



Fig. 22. Stations of plankton samplings with an underway plankton catcher V in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

Table 24. Plankton data (Underway Plankton Catcher, V) in the "Oshoro

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Revolutions of flow-meter, Rig. 227 | Volume of water filtered ($m^3$) | Wet weight of sample per 1000$m^3$ (gr) |
|---|---|---|---|---|---|---|---|
| 1 | | 41°52′N 145°50′E | June 7 | 2005~2035 | 10165 | 8.72 | 940 |
| 2 | | 42°27′N 149°29′E | 〃 8 | 2005~2035 | * 155 | 0.13 | 3846 |
| 3 | | 45°39′N 157°32′E | 〃 10 | 1926~1956 | 22490 | 19.29 | 570 |
| 4 | Os 3 | 48°09′N 164°02′E | 〃 12 | 2028~2058 | 22890 | 19.63 | 708 |
| 5 | Os 7 | 52°00′N 170°10′E | 〃 15 | 2105~2135 | 23890 | 20.49 | 317 |
| 6 | Os 10 | 57°00′N 170°30′E | 〃 17 | 2020~2050 | 27710 | 25.49 | 48 |
| 7 | | 55°05′N 175°03′E | 〃 19 | 1812~1842 | 22080 | 18.94 | 301 |
| 8 | Os 13 | 53°00′N 175°05′E | 〃 20 | 1714~1744 | 21000 | 18.01 | 519 |
| 9 | | 53°03′N 178°03′E | 〃 21 | 1700~1730 | 23058 | 19.78 | 364 |
| 10 | Os 18 | 51°00′N 179°31′W | 〃 23 | 2137~2207 | 18965 | 16.27 | 566 |
| 11 | Os 21 | 48°16′N 179°32′W | 〃 24 | 2000~2030 | 21260 | 18.24 | 1546 |
| 12 | Os 23 | 48°25′N 175°11′W | 〃 25 | 2108~2138 | 18555 | 15.92 | 427 |
| 13 | | 48°52′N 171°56′W | 〃 26 | 1930~2000 | 10960 | 9.40 | 692 |
| 14 | Os 27 | 51°16′N 171°56′W | 〃 27 | 1825~1855 | 23295 | 19.98 | 1001 |
| 15 | | 57°31′N 171°51′W | July 1 | 1510~1540 | 33230 | 28.51 | 70 |
| 16 | | 57°41′N 174°15′W | 〃 2 | 1605~1635 | 18932 | 16.24 | 930 |
| 17 | Os 33 | 58°59′N 173°32′W | 〃 5 | 1720~1750 | 23750 | 20.37 | 177 |
| 18 | | 60°44′N 173°22′W | 〃 6 | 0934~1004 | 21368 | 18.33 | 6 |
| 19 | | 61°00′N 171°49′W | 〃 6 | 1730~1800 | 23680 | 20.31 | 20 |
| 20 | Os 37 | 59°25′N 169°12′W | 〃 7 | 1930~2000 | 20718 | 17.77 | 6 |
| 21 | Os 40 | 58°10′N 164°42′W | 〃 11 | 2000~2030 | 20680 | 17.74 | 107 |
| 22 | | 57°48′N 162°04′W | 〃 13 | 0625~0655 | 20420 | 17.52 | 245 |
| 23 | | 56°05′N 164°03′W | 〃 13 | 2210~2240 | 25335 | 21.73 | 166 |
| 24 | Os 45 | 54°05′N 163°34′W | 〃 14 | 1936~2006 | 21660 | 18.58 | 301 |
| 25 | | 54°12′N 158°55′W | 〃 15 | 1715~1745 | 18642 | 15.99 | 1082 |

* doubtful

Maru'' cruise 46 to the Bering Sea and North Pacific in June–August 1960

| Dominant forms in samples | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a haul) | | |
|---|---|---|---|---|
| | | *Aglantha* | Others | |
| | | | Jelly-fish | Squid |
| *Pseudocalanus elongatus*, *Calanus plumchrus*, Euphausiid | 0 | 6 | 0 | 2 |
| *Calanus plumchrus* | 0 | 2 | 0 | 0 |
| *Calanus plumchrus* | 1 | 1 | 0 | 0 |
| *Calanus cristatus* | 0 | 0 | 0 | 0 |
| *Calanus plumchrus* | 2 | 0 | 0 | 0 |
| *Calanus plumchrus* | 0 | 0 | 0 | 0 |
| *Calanus plumchrus* | 2 | 0 | 0 | 0 |
| *Calanus plumchrus*, *Oithona similis*, *Pseudocalanus elongatus* | 8 | 1 | 0 | 0 |
| *Calanus plumchrus*, *Oithona similis*, *Pseudocalanus elongatus* | 12 | 0 | 0 | 0 |
| *Calanus plumchrus* | 0 | 0 | 0 | 0 |
| *Calanus plumchrus*, *Calanus cristatus* | 0 | 11 | 1 | 0 |
| *Calanus plumchrus*, *Pseudocalanus elongatus* | 0 | 3 | 0 | 0 |
| *Calanus plumchrus* | 0 | 0 | 0 | 0 |
| *Calanus plumchrus* | 8 | 0 | 0 | 0 |
| *Calanus plumchrus*, *Oithona similis* | 0 | 0 | 1 | 0 |
| *Calanus plumchrus*, *Pseudocalanus elongatus*, *Oithona similis* | 3 | 0 | 0 | 0 |
| Zoea larvae of crabs, *Limacina helicina* | 1 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 |
| | 0 | 8 | 0 | 0 |
| *Pseudocalanus elongatus*, *Acartia longiremis* | 10 | 0 | 0 | 0 |
| *Pseudocalanus elongatus*, *Acartia longiremis* | 6 | 0 | 0 | 0 |
| *Pseudocalanus elongatus*, *Calanus plumchrus* | 6 | 0 | 0 | 0 |
| *Limacina helicina* | 1 | 0 | 0 | 0 |
| *Calanus plumchrus* | 21 | 0 | 0 | 0 |

Table 24.

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Revolutions of flow-meter, Rig. 227 | Volume of water filtered ($m^3$) | Wet weight of sample per 1000$m^3$ (gr) |
|---|---|---|---|---|---|---|---|
| 26 | Os 48 | 54°39′N 156°02′W | July 16 | 2030～2100 | 18720 | 16.06 | 1611 |
| 27 | | 55°31′N 151°28′W | 〃 17 | 1950～2010 | 16790 | 14.40 | 1257 |
| 28 | | 57°21′N 143°14′W | 〃 19 | 1930～2000 | 23530 | 20.18 | 724 |
| 29 | | 58°07′N 137°04′W | 〃 20 | 1930～2000 | 23940 | 20.54 | 15 |
| 30 | | Cross Sound | 〃 21 | 0510～0540 | 20970 | 17.99 | 33 |
| 31 | | 57°41′N 133°47′W | 〃 26 | 1300～1330 | 15212 | 13.05 | 123 |
| 32 | | 56°47′N 134°11′W | 〃 26 | 2000～2030 | 26850 | 23.03 | 17 |
| 33 | | 52°57′N 132°39′W | 〃 27 | 2130～2200 | *3850 | 3.30 | 30 |
| 34 | | 50°22′N 128°35′W | 〃 28 | 2100～2130 | 25258 | 21.67 | 1754 |
| 35 | | 48°27′N 124°38′W | 〃 29 | 2000～2030 | *6350 | 5.44 | 919 |
| 36 | | 49°12′N 132°42′W | August 7 | 2040～2110 | 21770 | 18.67 | 225 |
| 37 | | 48°49′N 138°30′W | 〃 8 | 2040～2110 | 12722 | 10.91 | 513 |
| 38 | | 48°25′N 142°40′W | 〃 9 | 1955～2025 | 22520 | 19.32 | 228 |
| 39 | | 48°09′N 146°51′W | 〃 10 | 2015～2045 | 16928 | 14.52 | 55 |
| 40 | | 47°52′N 151°17′W | 〃 11 | 2023～2053 | 16245 | 13.93 | 65 |
| 41 | | 47°41′N 155°38′W | 〃 12 | 1940～2010 | 17227 | 14.78 | 690 |
| 42 | | 47°02′N 159°48′W | 〃 13 | 2000～2030 | 14745 | 12.65 | 1012 |
| 43 | | 46°01′N 162°51′W | 〃 14 | 2000～2030 | 20520 | 17.60 | 432 |
| 44 | | 44°47′N 167°01′W | 〃 15 | 2015～2045 | 19700 | 16.90 | 30 |
| 45 | | 42°56′N 170°50′W | 〃 16 | 1930～2000 | * 210 | 0.18 | 45555 |
| 46 | | 42°01′N 175°47′W | 〃 17 | 1940～2010 | 23058 | 19.78 | 25 |
| 47 | | 42°13′N 179°53′W | 〃 18 | 1950～2020 | 16550 | 14.19 | 35 |
| 48 | | 42°19′N 175°58′E | 〃 20 | 1910～1940 | 13365 | 11.46 | 9 |
| 49 | | 42°08′N 171°28′E | 〃 21 | 1930～2000 | 20070 | 17.22 | 29 |
| 50 | | 42°04′N 166°44′E | 〃 22 | 1940～2010 | 20300 | 17.41 | 6 |

* doubtful

(Continued)

| Dominant forms in samples | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a haul) | | |
|---|---|---|---|---|
| | | *Aglantha* | Others | |
| | | | Jelly-fish | Squid |
| *Calanus plumchrus* | 5 | 0 | 0 | 0 |
| *Calanus plumchrus* | 0 | 0 | 0 | 0 |
| *Calanus plumchrus* | 0 | 0 | 0 | 3 |
| Cirriped larvae | 0 | 0 | 2 | 0 |
| | 0 | 0 | 3 | 0 |
| | 6 | 0 | 0 | 0 |
| | 1 | 1 | 1 | 0 |
| | 0 | 0 | 0 | 0 |
| *Themisto* spp., Euphausiid | 0 | 0 | 0 | 0 |
| Euphausiid | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 |
| | 0 | 3 | 0 | 0 |
| | 0 | 1 | 0 | 0 |
| Diatoms | 0 | 0 | 0 | 0 |
| *Metridia lucens, Calanus cristatus* | 0 | 0 | 0 | 0 |
| *Calanus cristatus, Calanus plumchrus* | 1 | 1 | 0 | 0 |
| *Calanus plumchrus* | 0 | 3 | 0 | 0 |
| | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 1 |
| | 0 | 7 | 0 | 0 |
| | 0 | 11 | 1 | 0 |
| | 0 | 1 | 1 | 0 |
| | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 |

Table 24.

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Revolutions of flow-meter, Rig. 227 | Volume of water filtered ($m^3$) | Wet weight of sample per $1000m^3$ (gr) |
|---|---|---|---|---|---|---|---|
| 51 | | 42°52′ N 161°46′ E | August 23 | 2000～2030 | 22360 | 19.18 | 5 |
| 52 | | 43°30′ N 156°53′ E | 〃 24 | 1950～2020 | 20320 | 17.43 | 23 |
| 53 | | 42°52′ N 152°28′ E | 〃 25 | 1940～2010 | 5510 | 4.72 | 64 |
| 54 | | 41°44′ N 150°52′ E | 〃 26 | 1940～2010 | 15058 | 12.91 | 31 |
| 55 | | 42°14′ N 147°05′ E | 〃 27 | 1900～1930 | 17435 | 14.95 | 33 |
| 56 | | 41°51′ N 143°30′ E | 〃 28 | 1530～1600 | 17455 | 14.97 | 27 |
| 57 | | 41°49′ N 143°05′ E | 〃 28 | 1700～1730 | 17605 | 15.10 | 20 |
| 58 | | 41°48′ N 142°38′ E | 〃 28 | 1910～1940 | 21940 | 18.82 | 314 |

Flow-meter calibration

Flow-meter: Rig. 227

Tows at 8.5 knots

| | tow | revolution |
|---|---|---|
| | 33 min. | 38110 |
| | 31 min. | 37110 |
| Mean | 30 min. | 35280 |

(Continued)

| Dominant forms in samples | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a haul) | | |
|---|---|---|---|---|
| | | *Aglantha* | Others | |
| | | | Jelly-fish | Squid |
| | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 1 |
| | 0 | 0 | 0 | 0 |
| Cladocera | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 |
| Euphausiid | 0 | 0 | 0 | 0 |

## 16. Data on Plankton Collected with a Simultaneous Horizontal Tow with Eleven Horizontal Nets

(11層別ネット同時水平採集プランクトン記録)

Eleven horizontal nets, 30 cm × 100 cm, GG 54, (Motoda, 1960, Mem. Fac. Fish., Hokkaido Univ., Vol. 7, No. 1/2, p. 78) were attached on a wire cable, 2.7 mm, in diameter, at eleven different levels from the surface to about 2000 meter depth, and towed horizontally for one hour while the ship was drifted.

The net was not equipped with flow-meter, so that the data are only available for comparison between different levels in a tow.

Samplings were carried out at 6 stations.

Wet weight of the samples was obtained by weighing the materials left on the filtering disc of the aspiration filtering apparatus.

The weighing of the samples was made at the Plankton Laboratory of the University.

Dominant forms occurring in the samples were recorded.

Recording of dominant forms was made by M. Omori.

Table. 25. Plankton data (Simultaneous horizontal tow with eleven horizontal and North Pacific in June–August 1960.

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Wire out (m) | Wire angle (degree) | Estimated depth of haul (m) | Wet weight of samples in a tow (gr) |
|---|---|---|---|---|---|---|---|---|
| 1 | Os 11 | 57°00′N 175°03′E | June 18 | net out 1534～1600 | 3 | 24°～30° | 3 | 74.9 |
| | | | | tow 1600～1700 | 50 | 〃 | 43 ～ 45 | 1.5 |
| | | | | net in 1700～1723 | 100 | 〃 | 87 ～ 91 | 7.2 |
| | | | | | 200 | 〃 | 173 ～ 183 | 21.0 |
| | | | | | 400 | 〃 | 347 ～ 365 | 0.1 |
| | | | | | 600 | 〃 | 520 ～ 548 | 4.4 |
| | | | | | 900 | 〃 | 779 ～ 822 | 0.7 |
| | | | | | 1400 | 〃 | 1212～1278 | 1.4 |
| | | | | | 1900 | 〃 | 1645～1735 | 4.8 |
| 2 | Os 17 | 52°54′N 178°54′W | June 22 | net out 1625～1655 | 3 | 14°～15° | 3 | 35.9 |
| | | | | tow 1655～1755 | 50 | 〃 | 48 ～ 49 | 2.6 |
| | | | | net in 1755～1815 | 100 | 〃 | 97 | 0.8 |
| | | | | | 200 | 〃 | 193 ～ 194 | 3.4 |
| | | | | | 400 | 〃 | 386 ～ 388 | 4.9 |
| | | | | | 600 | 〃 | 579 ～ 582 | 2.1 |
| | | | | | 900 | 〃 | 869 ～ 873 | 2.1 |
| | | | | | 1400 | 〃 | 1351～1358 | 3.5 |
| | | | | | 1900 | 〃 | 1834～1843 | 2.2 |
| 3 | Os 28 | 53°31′N 171°58′W | June 28 | net out 1010～1035 | 3 | 18° | 3 | 9.6 |
| | | | | tow 1035～1135 | 50 | 〃 | 48 | 0.1 |
| | | | | net in 1135～1200 | 100 | 〃 | 95 | 4.6 |
| | | | | | 200 | 〃 | 189 | 3.9 |
| | | | | | 300 | 〃 | 285 | 14.0 |
| | | | | | 500 | 〃 | 476 | 4.2 |
| | | | | | 700 | 〃 | 666 | 2.9 |
| | | | | | 1000 | 〃 | 915 | 3.0 |
| | | | | | 1300 | 〃 | 1236 | 1.7 |
| | | | | | 1600 | 〃 | 1522 | 3.5 |
| | | | | | 1900 | 〃 | 1807 | 11.6 |
| 4 | Os 32 | 57°41′N 174°25′W | July 3 | net out 1603～1630 | 3 | 11° | 3 | 3.0 |
| | | | | tow 1630～1732 | 50 | 〃 | 49 | 0.3 |

net 30 cm × 100 cm, GG54) in the "Oshoro Maru" cruise 46 to the Bering Sea

| Dominant forms in samples | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a tow) | |
|---|---|---|---|
| | | *Aglantha* | Others |
| *Calanus plumchrus* | | | |
| *Eucalanus bungii* | | 90 | |
| *Eucalanus bungii* | | 102 | |
| *Eucalanus bungii* | | 42 | |
| | | 2 | |
| | | 11 | |
| | | 2 | 1 jelly-fish |
| | | 8 | |
| | | 7 | |
| *Calanus plumchrus* | | | |
| *Eucalanus bungii, Calanus plumchrus* | | | |
| *Calanus plumchrus* | | | |
| *Calanus plumchrus* | 1 | 2 | |
| | | 2 | 1 *Sagitta* |
| | | 2 | |
| | | 1 | |
| | | 1 | |
| | | 1 | 3 jelly-fish |
| *Calanus plumchrus* | | | |
| | | 1 | |
| | | 3 | 1 jelly-fish |
| | | 13 | |
| | | 1 | 2 jelly-fish |
| | | 1 | 1 jelly-fish |
| | | | 1 shrimp |
| | | 3 | 1 jelly-fish<br>1 shrimp |
| *Calanus plumchrus* | | 1 | 1 jelly-fish |
| *Calanus plumchrus* | | 1 | |

Table. 25.

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Wire out (m) | Wire angle (degree) | Estimated depth of haul (m) | Wet weight of samples in a tow (gr) |
|---|---|---|---|---|---|---|---|---|
| | | | | net in 1732～1758 | 100 | 11° | 98 | 0.4 |
| | | | | | 200 | 〃 | 196 | 0.7 |
| | | | | | 300 | 〃 | 294 | 0.7 |
| | | | | | 500 | 〃 | 491 | 0.8 |
| | | | | | 700 | 〃 | 687 | 2.6 |
| | | | | | 1000 | 〃 | 981 | 1.2 |
| | | | | | 1300 | 〃 | 1275 | 0.6 |
| | | | | | 1600 | 〃 | 1570 | 2.1 |
| | | | | | 1900 | 〃 | 1864 | 3.1 |
| 5 | | 57°21′N 174°46′W | July 4 | net out 1538～1550 | 2 | 12° | 2 | 4.3 |
| | | | | tow 1550～1650 | 10 | 〃 | 10 | 3.3 |
| | | | | net in 1650～1659 | 20 | 〃 | 20 | 1.0 |
| | | | | | 30 | 〃 | 29 | 6.7 |
| | | | | | 40 | 〃 | 39 | 8.8 |
| | | | | | 50 | 〃 | 49 | 5.2 |
| | | | | | 60 | 〃 | 59 | 1.9 |
| | | | | | 70 | 〃 | 69 | 1.5 |
| | | | | | 80 | 〃 | 78 | 1.7 |
| | | | | | 90 | 〃 | 88 | 2.7 |
| | | | | | 100 | 〃 | 98 | 4.1 |
| 6 | | 57°21′N 174°46′W | 〃 | net out 2203～2215 | 2 | 8° | 2 | 0.1 |
| | | | | tow 2215～2315 | 12 | 〃 | 12 | 5.6 |
| | | | | net in 2315～2332 | 22 | 〃 | 22 | 14.9 |
| | | | | | 32 | 〃 | 32 | 14.5 |
| | | | | | 42 | 〃 | 42 | 10.3 |
| | | | | | 52 | 〃 | 52 | 5.8 |
| | | | | | 62 | 〃 | 61 | 6.1 |
| | | | | | 72 | 〃 | 71 | 6.1 |
| | | | | | 82 | 〃 | 81 | 6.2 |
| | | | | | 92 | 〃 | 91 | 7.4 |
| | | | | | 102 | 〃 | 101 | 6.0 |

(Continued)

| Dominant forms in samples | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a tow) | |
|---|---|---|---|
| | | *Aglantha* | Others |
| | | 12 | |
| | | 5 | |
| | | 2 | |
| | | 3 | |
| | | 1 | 1 jelly-fish |
| | | 6 | 2 jelly-fish |
| | | 8 | |
| *Calanus plumchrus* | | | |
| *Calanus plumchrus* | | | |
| | | | 4 jelly-fish |
| | | | 3 jelly-fish |
| Small-sized copepod, *Calanus cristatus* | | | 1 squid |
| Small-sized copepod | | | 1 Amphipod |
| Small-sized copepod | | | |
| | | 1 | 1 jelly-fish |
| | | | 1 jelly-fish |
| *Eucalanus bungii* | | | 1 jelly-fish |
| | | 1 | 5 jelly-fish |
| | | 51 | |
| *Calanus plumchrus* | | 56 | |
| *Calanus plumchrus* | | 64 | 3 *Tomopteris* |
| | | 10 | |
| | | 8 | 1 jelly-fish |
| | | 8 | 2 jelly-fish |
| | | 7 | 2 jelly-fish |
| | | 8 | 1 *Tomopteris*<br>3 jelly-fish |
| | | 3 | 2 jelly-fish |
| *Calanus plumchrus, Eucalanus bungii* | | 9 | |

## 17. Data on Fish Larvae Collected with a Larva Net
(稚魚ネット採集稚魚記録)

Specimens of fish larvae were picked up from the mixed plankton samples which were collected by the horizontal surface tow with a larva net and from a few samples collected by vertical, oblique, and deep horizontal hauls with the same net. (ref. to pp. 180–187)

Fish larvae were identified by K. Kobayashi at the Laboratory of Ichthyology of the University. (To our great regret Professor Shin-ichi Sato passed away on October 27, 1960.)

Table 26. Data on collection of fish larvae (130 cm × 450 cm, larva net; surface tow) in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Volume of water filtered ($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 1 | | 42°37′ N<br>149°29′ E | June 8 | 1947~1957 | 825.9 | Unidentified | 1 | ca 10.0 |
| 2 | | 44°06′ N<br>153°16′ E | 〃 9 | 2030~2040 | 647.9 | No fish larva | | |
| 3 | | 45°43′ N<br>157°45′ E | 〃 10 | 2024~2034 | 702.4 | No fish larva | | |
| 4 | | 47°10′ N<br>161°16′ E | 〃 11 | 2050~2100 | 691.4 | No fish larva | | |
| 5 | Os 3 | 48°09′ N<br>164°02′ E | 〃 12 | 2010~2020 | 765.9 | *Pleurogrammus monopterygius*<br>*Hexagrammos*<br>*Hemilepidotus* | 1<br>1<br>1 | 37.5<br>27.0<br>25.5 |
| 6 | Os 5 | 49°06′ N<br>167°33′ E | 〃 13 | 2047~2057 | 690.0 | No fish larva | | |
| 7 | Os 6 | 50°00′ N<br>170°00′ E | 〃 14 | 2150~2200 | 927.4 | *Lumpenus*<br>*Pleurogrammus monopterygius*<br>*Hexagrammos*<br>*Hemilepidotus* | 2<br>1<br>5<br>70 | 33.8~36.8<br>47.1<br>16.5~27.2<br>13.0~25.0 |
| 8 | Os 7 | 52°00′ N<br>170°10′ E | 〃 15 | 1955~2005 | 674.8 | *Hexagrammos*<br>*Hemilepidotus* | 2<br>2 | 19.0~20.0<br>15.0~17.5 |
| 9 | Os 9 | 55°00′ N<br>170°30′ E | 〃 16 | 2105~2115 | 613.4 | *Pleurogrammus monopterygius*<br>*Hemilepidotus*<br>Unidentified | 5<br>7<br>1 | 31.7~49.7<br>6.0~21.0<br>10.0 |

Table 26. (Continued)

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Volume of water filtered ($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 10 | Os 10 | 57°00′ N<br>170°30′ E | June 17 | 2003～2013 | 943.9 | *Pleurogrammus monopterygius*<br>*Hemilepidotus* | 1<br>5 | 28.3<br>19.0～27.2 |
| 11 | Os 11 | 57°01′ N<br>175°03′ E | 〃 18 | 1735～1745 | 714.8 | No fish larva | | |
| 12 | Os 12 | 55°03′ N<br>175°07′ E | 〃 19 | 2102～2112 | 590.6 | *Hexagrammos*<br>*Hemilepidotus*<br>Unidentified | 1<br>6<br>1 | 36.2<br>17.6～25.3<br>12.0 |
| 13 | Os 13 | 53°00′ N<br>175°05′ E | 〃 20 | 2040～2050 | 661.0 | *Lumpenus* | 1 | 39.0 |
| 14 | Os 14 | 53°05′ N<br>178°05′ E | 〃 21 | 2019～2029 | 849.4 | *Lumpenus*<br>*Anoplopoma fimbria*<br>*Hexagrammos*<br>Unidentified | 2<br>1<br>253<br>39 | 37.0～42.2<br>14.0<br>6.0～24.0<br>9.0～13.0 |
| 15 | Os 16 | 52°36′ N<br>179°09′ W | 〃 21 | 2124～2134 | 1010.2 | *Ammodytes hexapterus*<br>*Bathymaster*<br>*Lumpenus*<br>*Hexagrammos*<br>*Hemilepidotus*<br>*Myoxocephalus*?<br>*Liparis*<br>Unidentified | 1<br>3<br>22<br>5<br>40<br>1<br>1<br>67 | 30.0<br>54.5～60.0<br>29.0～38.5<br>16.0～20.5<br>7.0～30.5<br>ca 17.5<br>18.0<br>10.0～14.0 |
| 16 | Os 17 | 52°54′ N<br>178°54′ W | 〃 22 | 1603～1613 | 707.9 | *Hexagrammos* | 1 | 22.0 |
| 17 | Os 18 | 51°00′ N<br>179°31′ W | 〃 23 | 2118～2128 | 636.7 | *Hexagrammos*<br>Unidentified | 4<br>4 | 9.0～25.1<br>8.5～12.5 |
| 18 | Os 21 | 48°16′ N<br>179°32′ W | 〃 24 | 1941～1951 | | *Hexagrammos lagocephalus* | 1 | 82.8 |
| 19 | Os 23 | 48°25′ N<br>175°11′ W | 〃 25 | 2050～2100 | 845.7 | *Tarletonbeania crenularis* | 1 | 66.7 |
| 20 | Os 25 | 48°59′ N<br>171°59′ W | 〃 26 | 2210～2220 | 779.7 | No fish larva | | |
| 21 | | 51°31′ N<br>172°09′ W | 〃 27 | 2050～2100 | 634.8 | *Hexagrammos*<br>*Hemilepidotus*<br>Unidentified | 1<br>3<br>39 | ca 27.0<br>10.0～11.5<br>8.0～11.5 |

Table 26. (Continued)

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Volume of water filtered ($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 22 | Os 28 | 53°31′N<br>171°58′W | June 28 | 1357～1407 | 618.2 | No fish larva | | |
| 23 | Os 29 | 55°30′N<br>171°52′W | 〃 29 | 2123～2133 | 712.8 | *Lumpenus*<br>*Hemilepidotus*<br>*Hexagrammos* | 1<br>1<br>6 | 40.4<br>19.7<br>18.6～25.9 |
| 24 | Os 30 | 56°00′N<br>171°44′W | 〃 30 | 2118～2128 | 621.0 | *Hemilepidotus*<br>Unidentified | 1<br>1 | 19.0<br>13.0 |
| 25 | Os 31 | 57°40′N<br>171°50′W | July 1 | 2105～2115 | 1026.2 | *Hexagrammos*<br>*Hemilepidotus* | 1<br>6 | 22.5<br>16.1～28.4 |
| 26 | Os 32 | 57°41′N<br>174°25′W | 〃 2 | 2133～2138<br>2140～2150 | 1278.3 | *Ammodytes hexapterus*<br>*Lumpenus*<br>*Erilepis* ?<br>*Hexagrammos*<br>*Hemilepidotus*<br>*Theragra chalcogramma*<br>Unidentified | 1<br>2<br>1<br>3<br>33<br>7<br>6 | 43.7<br>39.1～39.8<br>21.5<br>21.7～25.7<br>6.0～21.5<br>24.8～29.4<br>11.0～12.0 |
| 27 | | 57°21′N<br>174°46′W | 〃 4 | 1518～1528 | 654.1 | *Hexagrammos* | 4 | 21.2～40.8 |
| 28 | Os 33 | 58°59′N<br>173°32′W | 〃 5 | 1947～1957 | 808.3 | No fish larva | | |
| 29 | Os 35 | 61°00′N<br>171°39′W | 〃 6 | 2155～2205 | 750.7 | No fish larva | | |
| 30 | Os 37 | 59°25′N<br>169°12′W | 〃 7 | 1910～1920 | 852.6 | Stichaeidae ?<br>*Myoxocephalus* ? | 1<br>175 | 28.3<br>11.0～16.5 |
| 31 | Os 40 | 58°10′N<br>164°42′W | 〃 11 | 2140～2150 | 734.2 | *Myoxocephalus* ? | 20 | 12.0～16.5 |
| 32 | Os 43 | 56°04′N<br>163°56′W | 〃 13 | 2145～2155 | | *Mallotus*<br>*Ammodytes hexapterus* | 2<br>2 | 48.4～52.8<br>28.8～35.3 |
| 33 | | 53°58′N<br>163°13′W | 〃 14 | 2115～2125 | 664.3 | *Ammodytes hexapterus*<br>*Hemilepidotus* | 14<br>3 | 32.0～51.5<br>24.3～26.2 |
| 34 | Os 47 | 54°14′N<br>158°37′W | 〃 15 | 2110～2120 | 767.5 | *Ammodytes hexapterus*<br>*Hemilepidotus*<br>Unidentified | 1<br>150<br>70 | 41.7<br>5.0～18.0<br>9.0～14.5 |

Table 26. (Continued)

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Volume of water filtered ($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 35 | Os 48 | 54°39′ N<br>156°02′ W | July 16 | 2015～2025 | 730.7 | *Anoplopoma fimbria*<br>*Hemilepidotus*<br>Unidentified | 1<br>7<br>138 | 43.5<br>8.5～24.2<br>8.5～18.5 |
| 36 | | 55°32′ N<br>151°22′ W | 〃 17 | 2030～2040 | 726.2 | Unidentified | 49 | 11.0～20.5 |
| 37 | | 57°23′ N<br>143°02′ W | 〃 19 | 2015～2025 | 573.0 | Fish-egg | 1 | |
| 38 | | 58°07′ N<br>137°04′ W | 〃 20 | 2034～2044 | 536.1 | No fish larva | | |
| 39 | | 52°57′ N<br>132°39′ W | 〃 27 | 2230～2240 | 887.0 | *Tarletonbeania crenularis*<br>*Liparis* | 3<br>1 | 42.3～56.0<br>11.5 |

Table 27. Data on collection of fish larvae (130 cm × 450 cm, larva net; Noth Pacific in June–August 1960

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Haul |
|---|---|---|---|---|---|
| 1 | Os 11 | 75°00′N 175°03′E | June 18 | 1757～1813 | Oblique |
| 2 | Os 11 | 57°00′N 175°03′E | 〃 18 | 1823～1919 | Horizontal |
| 3 | Os 17 | 52°54′N 178°54′W | 〃 22 | 1305～1336 | Vertical |
| 4 | Os 17 | 52°54′N 178°54′W | 〃 22 | 1500～1535 | Horizontal |
| 5 | Os 28 | 53°31′N 171°58′W | 〃 28 | 0935～0950 | Vertical |
| 6 | Os 28 | 53°31′N 171°58′W | 〃 28 | 1307～1327 | Horizontal |
| 7 | | 57°21′N 174°46′W | July 4 | 1347～1402 | Vertical |
| 8 | | 57°21′N 174°46′W | 〃 4 | 1414～1508 | *Horizontal |

deep horizontal haul) in the "Oshoro Maru" cruise 46 to the Bering Sea and

| Length of wire run out (m) | Wire angle (degree) | Volume of water filtered($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Total length of fish-larva (mm) |
|---|---|---|---|---|---|
| 300 | 8°～48° | 841.8 | No fish larva | | |
| 350 | 25°～28° | 1388.3 | *Lampanyctus leucopsarus* | 1 | 41.7 |
| 350 | 15° | 1087.4 | No fish larva | | |
| 350 | 20°～45° | 2495.0 | No fish larva | | |
| 350 | 2° | 538.2 | No fish larva | | |
| 350 | 15°～70° | 3053.3 | *Hemilepidotus* | 1 | 11.7 |
| 350 | 3°～8° | 609.3 | No fish larva | | |
| 350 | 25°～45° | 1168.9 | No fish larva | | |

## 18. Data on Fish Larvae Collected with an Underway Plankton Catcher V
(航走採集器V型採集稚魚記録)

Specimens of fish larvae were picked up from the mixed plankton samples which were collected during a high speed tow with an Underway Plankton Catcher V, (ref. to pp. 188-189.)
Fish larvae were identified by K. Kobayashi at the Laboratory of Ichthyology of the University.

Table 28. Data on collection of fish larvae with an Underway Plankton Catcher V in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June-August 1960

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Volume of water filtered ($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Range of total length of fish-larva(mm) |
|---|---|---|---|---|---|---|---|---|
| 1 | | 41°52′N 145°50′E | June 7 | 2005～2035 | 8.72 | Fish egg | 1 | |
| 2 | | 42°27′N 149°29′E | 〃 8 | 2005～2035 | 0.13 | No fish-larva | | |
| 3 | | 45°39′N 157°32′E | 〃 10 | 1926～1956 | 19.29 | *Hemilepidotus* | 1 | 24.0 |
| 4 | Os 3 | 48°09′N 164°02′E | 〃 12 | 2028～2058 | 19.63 | No fish-larva | | |
| 5 | Os 7 | 52°00′N 170°10′E | 〃 15 | 2105～2135 | 20.49 | *Hemilepidotus* | 2 | ca 8.0 |
| 6 | Os 10 | 57°00′N 170°30′E | 〃 17 | 2020～2050 | 25.49 | No fish-larva | | |
| 7 | | 55°05′N 175°03′E | 〃 19 | 1812～1842 | 18.94 | *Hemilepidotus* | 2 | 10.0 |
| 8 | Os 13 | 53°00′N 175°05′E | 〃 20 | 1714～1744 | 18.01 | *Hemilepidotus* | 8 | 9.0～10.0 |
| 9 | | 53°03′N 178°03′E | 〃 21 | 1700～1730 | 19.78 | *Hemilepidotus* | 12 | 7.0～11.0 |
| 10 | Os 18 | 51°00′N 179°31′W | 〃 23 | 2137～2207 | 16.27 | No fish-larva | | |
| 11 | Os 21 | 48°16′N 179°32′W | 〃 24 | 2000～2030 | 18.24 | No fish-larva | | |

Table 28. (Continued)

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Volume of water filtered ($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 12 | Os 23 | 48°25′N<br>175°11′W | June 25 | 2108～2138 | 15.92 | No fish-larva | | |
| 13 | | 48°52′N<br>171°56′W | 〃 26 | 1930～2000 | 9.40 | No fish-larva | | |
| 14 | Os 27 | 51°16′N<br>171°56′W | 〃 27 | 1825～1855 | 19.98 | *Ammodytes hexapterus* | 8 | 9.0～10.0 |
| 15 | | 57°31′N<br>171°51′W | July 1 | 1510～1540 | 28.51 | No fish-larva | | |
| 16 | | 57°41′N<br>174°15′W | 〃 2 | 1605～1635 | 16.24 | *Hemilepidotus* | 3 | 11.0 |
| 17 | Os 33 | 58°59′N<br>173°32′W | 〃 5 | 1720～1750 | 20.37 | *Hemilepidotus* | 1 | 23.0 |
| 18 | | 60°44′N<br>173°22′W | 〃 6 | 0934～1004 | 18.33 | No fish-larva | | |
| 19 | | 61°00′N<br>171°49′W | 〃 6 | 1730～1800 | 20.31 | No fish-larva | | |
| 20 | Os 37 | 59°25′N<br>169°12′W | 〃 7 | 1930～2000 | 17.77 | No fish-larva | | |
| 21 | Os 40 | 58°10′N<br>164°42′W | 〃 11 | 2000～2030 | 17.74 | Unidentified (including a egg) | 10 | |
| 22 | | 57°48′N<br>162°04′W | 〃 13 | 0625～0655 | 17.52 | *Ammodytes hexapterus*<br>Unidentified | 4<br>3 | ca 18.0<br>ca 5.0 |
| 23 | | 56°05′N<br>164°03′W | 〃 13 | 2210～2240 | 21.73 | *Mallotus*<br>*Ammodytes hexapterus*<br>Gadidae | 4<br>1<br>1 | 48.0～59.7<br>38.0<br>29.0 |
| 24 | Os 45 | 54°05′N<br>163°34′W | 〃 14 | 1936～2006 | 18.58 | *Ammodytes hexapterus* | 1 | 31.7 |
| 25 | | 54°12′N<br>158°55′W | 〃 15 | 1715～1745 | 15.99 | Stichaeidae<br>*Hemilepidotus* | 9<br>12 | 9.0～15.0<br>7.0～16.0 |
| 26 | Os 48 | 54°39′N<br>156°02′W | 〃 16 | 2030～2100 | 16.06 | Stichaeidae<br>*Hemilepidotus* | 3<br>1 | 12.0～13.0<br>19.0 |

Table 28. (Continued)

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Volume of water filtered ($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Range of total length of fish-larva(mm) |
|---|---|---|---|---|---|---|---|---|
| 27 | | 55°32′N 151°28′W | July 17 | 1950～2010 | 14.40 | No fish-larva | | |
| 28 | | 57°21′N 143°14′W | 〃 19 | 1930～2000 | 20.18 | No fish-larva | | |
| 29 | | 58°07′N 137°04′W | 〃 20 | 1930～2000 | 20.54 | No fish-larva | | |
| 30 | | Cross Sound | 〃 21 | 0510～0540 | 17.99 | No fish-larva | | |
| 31 | | 57°41′N 133°47′W | 〃 26 | 1300～1330 | 13.05 | *Mallotus* | 6 | 15.0～24.5 |
| 32 | | 56°47′N 134°11′W | 〃 26 | 2000～2030 | 23.03 | *Mallotus* | 1 | 25.0 |
| 33 | | 52°57′N 132°39′W | 〃 27 | 2130～2200 | 3.30 | No fish-larva | | |
| 34 | | 50°22′N 128°35′W | 〃 28 | 2100～2130 | 21.67 | No fish-larva | | |
| 35 | | 48°27′N 124°38′W | 〃 29 | 2000～2030 | 5.44 | No fish-larva | | |
| 36 | | 49°12′N 132°42′W | Aug. 7 | 2040～2110 | 18.67 | No fish-larva | | |
| 37 | | 48°49′N 138°30′W | 〃 8 | 2040～2110 | 10.91 | No fish-larva | | |
| 38 | | 48°25′N 142°40′W | 〃 9 | 1955～2025 | 19.32 | No fish-larva | | |
| 39 | | 48°09′N 146°51′W | 〃 10 | 2015～2045 | 14.52 | No fish-larva | | |
| 40 | | 47°52′N 151°17′W | 〃 11 | 2023～2053 | 13.93 | No fish-larva | | |
| 41 | | 47°41′N 155°38′W | 〃 12 | 1940～2010 | 14.78 | No fish-larva | | |
| 42 | | 47°02′N 159°48′W | 〃 13 | 2000～2030 | 12.65 | *Tarletonbeania crenularis* | 1 | 45.9 |

Table 28. (Continued)

| No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Volume of water filtered ($m^3$) | Fish-larva collected (species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 43 | | 46°01′N 162°51′W | Aug 14 | 2000～2030 | 17.60 | No fish-larva | | |
| 44 | | 44°47′N 167°01′W | 〃 15 | 2015～2045 | 16.90 | No fish-larva | | |
| 45 | | 42°56′N 170°50′W | 〃 16 | 1930～2000 | 0.18 | No fish-larva | | |
| 46 | | 42°01′N 175°47′W | 〃 17 | 1940～2010 | 19.78 | No fish-larva | | |
| 47 | | 42°13′N 179°53′W | 〃 18 | 1950～2020 | 14.19 | No fish-larva | | |
| 48 | | 42°19′N 175°58′E | 〃 20 | 1910～1940 | 11.46 | No fish-larva | | |
| 49 | | 42°08′N 171°28′E | 〃 21 | 1930～2000 | 17.22 | No fish-larva | | |
| 50 | | 42°04′N 166°44′E | 〃 22 | 1940～2010 | 17.41 | No fish-larva | | |
| 51 | | 42°52′N 161°46′E | 〃 23 | 2000～2030 | 19.18 | No fish-larva | | |
| 52 | | 43°30′N 156°53′E | 〃 24 | 1950～2020 | 17.43 | No fish-larva | | |
| 53 | | 42°52′N 152°28′E | 〃 25 | 1940～2010 | 4.72 | No fish-larva | | |
| 54 | | 41°44′N 150°52′E | 〃 26 | 1940～2010 | 12.91 | No fish-larva | | |
| 55 | | 42°14′N 147°05′E | 〃 27 | 1900～1930 | 14.95 | No fish-larva | | |
| 56 | | 41°51′N 143°30′E | 〃 28 | 1530～1600 | 14.97 | No fish-larva | | |
| 57 | | 41°49′N 143°05′E | 〃 28 | 1700～1730 | 15.10 | No fish-larva | | |
| 58 | | 41°48′N 142°38′E | 〃 28 | 1910～1940 | 18.82 | No fish-larva | | |

## 19. Data on Sampling of Bottom Sediment
(採泥記録)

A simple cylindrical bottom sampler, 10 cm in diameter and 20 cm long, made of cast iron, with canvas bag at the end, was dredged on the bottom surface during the drift of the ship usually for 30 minutes. Samples thus obtained usually amounted to 1.5-2.0 kg. They were kept dried in cotton bags and will be used for the studies of small organisms in deposits. Before drying, an aliquot of samples except that collected at St. 11 was taken in to the sterilized bottle and was stored at -25°C in a refrigerator for bacterial studies. Samplings were carried out at 17 stations on the shallow bottom of the eastern part of the Bering Sea, at one station at the south of Unimak Pass and at one station off Cross Sound, southeastern Alaska. Samplings were supervised by K. Oshite.

Main object of the sampling was to give Dr. K. Oshite for studies of Diatoms in deposits. In addition, aliquots of samples were sent through Dr. Oshite to the following specialists at their disposal under the agreement of the Research Committee.

About 200 gr of samples to Dr. Hiroshi Niino (新野弘), Geological Laboratory, Tokyo University of Fisheries, for general studies on the rock.

About 100 gr of samples to Dr. Kojiro Nakaseko (中世古幸次郎), Geological Laboratory, Faculty of Science, Osaka Municipal University, for studies on Radiolaria.

About 100 gr of samples to Dr. Noriyuki Nasu (奈須紀幸), Geological Laboratory, Faculty of Science, University of Tokyo, for mechanical analysis and studies on minerals and clay minerals.

About 100 gr of samples to Dr. Yukinori Fujita (藤田至則), Geological Laboratory, Faculty of Science, Tokyo University of Education, for the studies on Foraminifera.

Naked eye observations of samples and grain size analysis presented in Table 29 were made by K. Oshite.

A part of the samples was stored in refrigerator for bacterial studies by Dr. M. Sakai and Mr. T. Kimura.

At the request of Dr. C.E. Dolman, Department of Bacteriology and Immunology, University of British Columbia, Vancouver, Canada, sixteen specimens of these aliquots collected at St. 1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, and 18 were offered to him for his studies on *Clostridium botulinum*. Later, Dr. C. E. Dolman personally inormed us in his letter of October 11, 1960, that "so far it looks as though none of the specimens contained any spores of *Clostridium botulinum*. Perhaps they were taken too far away from land for spores to show up in the relatively small samples examined."

Sampling of bottom sediment was also made by means of a bacteria sampler (J-Z sampler; ZoBell, C. E., 1941, Jour. Mar. Res., Vol. 4, No. 3, pp. 173-188) for bacterial studies at all stations except St. 2, 10, 11, and 19.

These samplings were supervised by M. Sakai and T. Kimura.

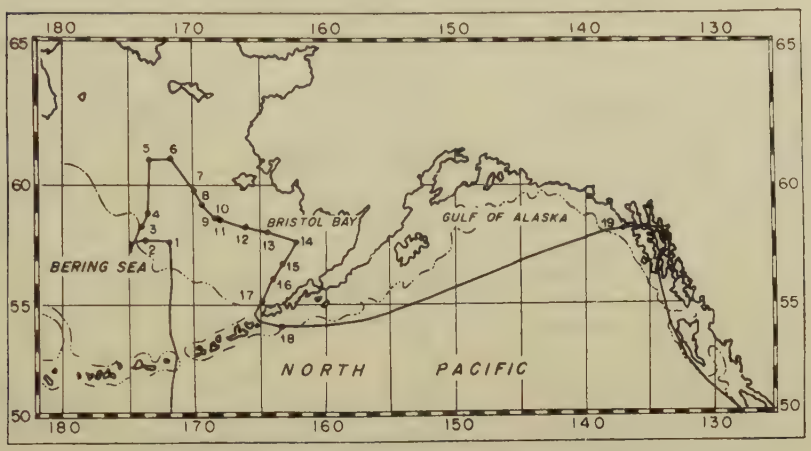



Fig. 23. Stations of samplings of bottom deposits in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

Table 29. Data on samplings of bottom deposits in the "Oshoro Maru" cruise

| No. of collection | Corresponding hydrographic station | Ship's date | Ship's time | Position | | Depth of sea bottom (m) | Temperature of water near bottom (°C) | Texture |
|---|---|---|---|---|---|---|---|---|
| | | | | Latitude | Longitude | | | |
| 1 | Os 31 | July 1 | 1630–1710 | 57°40′N | 171°50′W | 104 | 1.65 | M |
| 2 | | 〃 2 | 1330–1400 | 57°43′N | 173°40′W | 165 | | sGr |
| 3 | | 〃 5 | 1300–1330 | 58°21′N | 174°00′W | 132 | | sM |
| 4 | Os 33 | 〃 5 | 1900–1930 | 58°59′N | 173°32′W | 121 | 2.13 | sM |
| 5 | Os 34 | 〃 6 | 1130–1200 | 61°01′N | 173°24′W | 77 | -1.49 | sM |
| 6 | Os 35 | 〃 6 | 2000–2030 | 61°00′N | 171°39′W | 63 | -1.27 | sM |
| 7 | Os 36 | 〃 7 | 1305–1340 | 59°58′N | 170°00′W | 59 | -1.02 | sM |
| 8 | Os 37 | 〃 7 | 1832–1900 | 59°25′N | 169°12′W | 50 | 0.63 | mS |
| 9 | Os 38 | 〃 8 | 0900–0930 | 58°43′N | 167°54′W | 45 | 2.29 | S |
| 10 | | 〃 8 | 2100–2130 | 58°43′N | 168°04′W | 47 | | S |
| 11 | | 〃 10 | 0815–0915 | 58°43′N | 168°04′W | 47 | | S |
| 12 | Os 39 | 〃 11 | 1305–1330 | 58°25′N | 166°23′W | 49 | 2.98 | S |
| 13 | Os 40 | 〃 11 | 2100–2130 | 58°10′N | 164°42′W | 49 | 3.84 | mS |
| 14 | Os 41 | 〃 12 | 2000–2030 | 57°46′N | 162°01′W | 40 | 5.18 | S |
| 15 | Os 42 | 〃 13 | 1307–1330 | 56°50′N | 163°04′W | 72 | 1.41 | mS |
| 16 | Os 43 | 〃 13 | 2110–2145 | 56°04′N | 163°56′W | 92 | 1.72 | mS |
| 17 | Os 44 | 〃 14 | 0545–0615 | 55°07′N | 164°59′W | 105 | 4.60 | sM |
| 18 | Os 45 | 〃 14 | 1900–1930 | 54°05′N | 163°34′W | 106 | 4.74 | sM |
| 19 | | 〃 20 | 2200–2230 | 58°10′N | 136°36′W | 116 | | M |

sGr ····· Sandy gravel
S ····· Sand
mS ····· Muddy sand
sM ····· Sandy mud
M ····· Mud

46 to the Bering Sea and North Pacific in June–August 1960

| Naked eye observation of sample | | Grain size | | |
|---|---|---|---|---|
| Color in wet | Organisms contained | $M\phi$ | $M_{mm}$ | $\sigma\phi$ |
| Yellowish green | | 4.8 | 0.04 | 1.5 |
| Dark grey | Alive Hydrozoa and Bryozoa on gravel | 2.2 | 0.22 | 0.9 |
| Greyish green | | 3.2 | 0.11 | 1.0 |
| Greyish green | | 5.0 | 0.03 | 2.0 |
| Greyish green | Alive bivalves and alive brittle stars | 4.7 | 0.04 | 1.9 |
| Greyish green | Alive amphipod | 5.4 | 0.02 | 1.8 |
| Yellowish green | Bivalve shells | 4.7 | 0.04 | 1.6 |
| Greyish green | Fragments of bivalve shells | 3.7 | 0.08 | 1.4 |
| Dark grey | Alive bivalves and Foraminifera | 2.7 | 0.15 | 0.8 |
| Dark grey | Alive bivalves and Foraminifera | 2.7 | 0.15 | 0.8 |
| Dark grey | Alive bivalves and Foraminifera | 2.8 | 0.14 | 0.8 |
| Dark grey | Alive bivalves and numerous Foraminifera | 3.0 | 0.13 | 0.8 |
| Greyish green | Alive bivalves spiral shells and numerous Foraminifera | 2.8 | 0.13 | 0.8 |
| Dark grey | Fragments of shells | 2.4 | 0.20 | 0.4 |
| Yellowish green | Amphipod | 3.4 | 0.09 | 0.6 |
| Greyish green | | 3.6 | 0.08 | 1.0 |
| Yellowish green | Amphipod | 4.0 | 0.06 | 0.8 |
| Greyish green | | 2.7 | 0.15 | 1.2 |
| Whitish green | | 6.4 | 0.01 | 2.7 |

$M\phi$ ····· Mean diameter in phi scale
$M_{mm}$ ····· Mean diameter in mm
$\sigma\phi$ ····· Standard diviation in phi scale

## 20. Data on Salmon Gill-Net Set
（鮭鱒流網試験記録）

Gill-net sets were performed sixteen times at various localities mostly in the Bering Sea.

At each fishing, 42 to 81 tan (1 tan 49.2 meters) of gill net were set. The depth of net was about 5.3–5.4 meters.

Six different kinds of net having six different mesh sizes from 2.50 sun (7.6 cm) to 4.00 sun (13.6 cm) were used. These nets were not arranged in order from larger mesh size to smaller mesh size; a certain length of the nets of various mesh sizes were set alternately so as to eliminate the difference in catch due to the partial concentration of fish shoal at a part of a series of nets.

Operation was supervised by the captain and deck officers and all hands of the crew and cadets were engaged in the work.

Recordings of the number of fish caught with nets were made by deck officers separately by mesh sizes. Fish specimens caught with different mesh sizes were arranged in different boxes for biological measurement.

Fish species taken with gill net are:

*Oncorhynchus nerka* (Walbaum), Sockeye salmon, Red salmon, Blue-back salmon, Sukkegh salmon, ベニサケ, ベニマス, ベニ

*Oncorhynchus keta* (Walbaum), Chum salmon, Dog salmon, Calico salmon, Keta salmon, サケ, シロサケ, シロ

*Oncorhynchus gorbuscha* (Walbaum), Pink salmon, Humpback salmon, カラフトマス, セッパリマス

*Oncorhynchus tschawytscha* (Walbaum), King salmon, Spring salmon, Chinock salmon, Typee salmon, Tchavike, マスノスケ

*Salmo gairdneri iridius* Gibbons, Steelhead, スチールヘッド

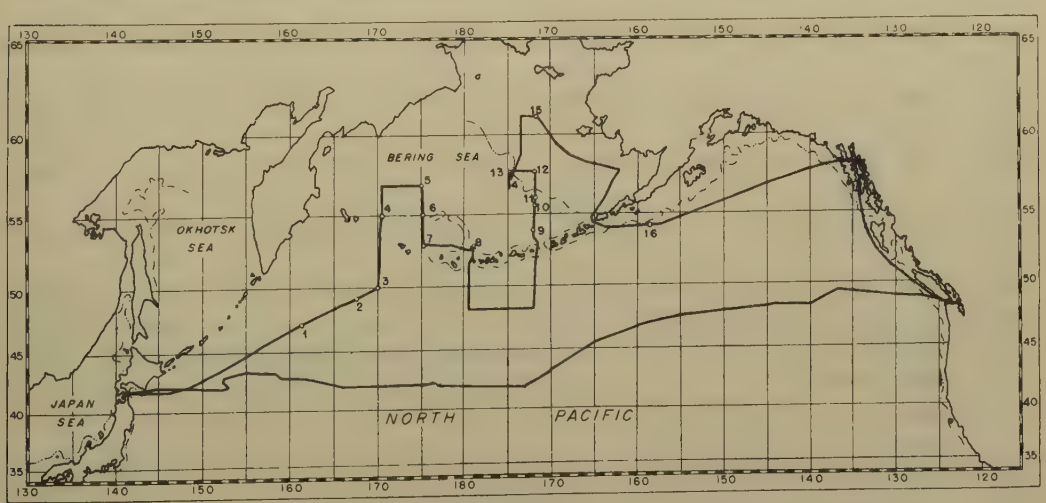



Fig. 24. Location of salmon gill-net set in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

Table 30. Data on gill-net operation in the "Oshoro Maru" cruise

| No. of fishing | Date and time (Ship's time) | | | | Position of net-set | | Direction of drift "toward" | Weather* |
|---|---|---|---|---|---|---|---|---|
| | Net set | | Net haul | | | | | |
| | Date | Time | Date | Time | Lat. | Long. | | |
| 1 | June 11 | 1815 | June 12 | 0440 | 47°10′N | 161°15′E | 240°～250° | o |
| 2 | 〃 13 | 1845 | 〃 14 | 0505 | 49°06′N | 167°33′E | 270° | o |
| 3 | 〃 14 | 1825 | 〃 15 | 0440 | 50°00′N | 170°00′E | 70°～80° | o |
| 4 | 〃 16 | 1900 | 〃 17 | 0500 | 54°48′N | 170°10′E | 50°～60° | r |
| 5 | 〃 18 | 1930 | 〃 19 | 0440 | 57°02′N | 170°04′E | 45° | o |
| 6 | 〃 19 | 1905 | 〃 20 | 0440 | 55°03′N | 175°07′E | 140° | o |
| 7 | 〃 20 | 1820 | 〃 21 | 0505 | 53°00′N | 175°05′E | 100°～110° | b |
| 8 | 〃 22 | 1835 | 〃 23 | 0535 | 52°57′N | 178°52′W | 120° | o |
| 9 | 〃 28 | 1830 | 〃 29 | 0440 | 54°01′N | 172°00′W | 160°～170° | o |
| 10 | 〃 29 | 1835 | 〃 30 | 0440 | 55°30′N | 171°49′W | 170° | o |
| 11 | 〃 30 | 1830 | July 1 | 0445 | 55°59′N | 171°43′W | 135° | r |
| 12 | July 1 | 1835 | 〃 2 | 0520 | 57°40′N | 171°44′W | 230°～250° | o |
| 13 | 〃 3 | 1830 | 〃 4 | 0440 | 57°43′N | 174°45′W | 315° | o |
| 14 | 〃 4 | 1835 | 〃 5 | 0455 | 57°18′N | 174°43′W | 130° | o |
| 15 | 〃 6 | 1835 | 〃 7 | 0435 | 61°00′N | 171°29′W | 135° | o |
| 16 | 〃 15 | 1830 | 〃 16 | 0545 | 54°12′N | 158°37′W | 20° | bc |

* b : Blue sky
bc : Partly clouded
o : Overcast
r : Rain

46 to the Bering Sea and North Pacific in June–August 1960

| Wind | | Surface temp. (°C) | Colour of sea | Trans-parency (m) | Amount of net cast (Tan)** (Depth of net=5.3~5.4 meters) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Force | | | | Mesh 2.5Sun (76mm) | Mesh 3.0Sun (91mm) | Mesh 3.5Sun (106mm) | Mesh 4.0Sun (121mm) | Mesh 4.3Sun (127mm) | Mesh 4.5Sun (136mm) | Altog-ether |
| NNE | 2 | 3.8 | 4 | 10 | 5 | 6 | 9 | 34 | 18 | 8 | 80 |
| NNW | 2 | 4.9 | 4 | 19 | 5 | 6 | 9 | 34 | 18 | 8 | 80 |
| S SW | 4 | 5.5 | | 15 | 3 | 4 | 3 | 18 | 6 | 8 | 42 |
| South | 3 | 5.4 | | 15 | 5 | 7 | 7 | 30 | 18 | 13 | 80 |
| S S E | 3 | 4.8 | | 13 | 5 | 7 | 8 | 30 | 18 | 13 | 81 |
| WNW | 3 | 6.1 | | 14 | 5 | 7 | 8 | 30 | 18 | 13 | 81 |
| SW | 3 | 6.5 | | 15 | 5 | 7 | 8 | 30 | 18 | 13 | 81 |
| SW | 3 | 6.0 | | 15 | 4 | 7 | 9 | 28 | 18 | 14 | 80 |
| WSW | 3 | 7.1 | 4 | 13.5 | 4 | 5 | 10 | 27 | 18 | 13 | 77 |
| West | 4 | 7.1 | 4 | 16.5 | 5 | 6 | 8 | 28 | 18 | 12 | 77 |
| South | 2 | 7.2 | | 6 | 5 | 6 | 9 | 28 | 18 | 12 | 78 |
| NNE | 3 | 7.8 | | 7 | 5 | 6 | 9 | 28 | 18 | 12 | 78 |
| S E | 1 | 7.7 | | 13 | 5 | 6 | 9 | 28 | 18 | 12 | 78 |
| SW | 2 | 8.2 | | | 5 | 6 | 9 | 28 | 18 | 12 | 78 |
| West | 3 | 7.7 | 4 | 16.5 | 5 | 6 | 9 | 28 | 18 | 12 | 78 |
| S SW | 2 | 12.3 | 4 | 17 | 5 | 6 | 9 | 28 | 18 | 12 | 78 |

** 1 Tan=49.2 meters in case 2.5–4.0 Sun and 4.5 Sun mesh net

1 Tan=53.2 meters in case 4.3 Sun mesh net

Table 31. Data on catch of salmon in the "Oshoro Maru" cruise

| No. of fishing | Number of fish caught | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mesh size of net: 2.5 Sun | | | | Mesh size of net: 3.0 Sun | | | | Mesh size of net: 3.5 Sun | | | | |
| | Sockeye (ベニ) | Chum (シロ) | Pink (マス) | King (マスノスケ) | Sockeye (ベニ) | Chum (シロ) | Pink (マス) | Knig (マスノスケ) | Sockeye (ベニ) | Chum (シロ) | Pink (マス) | King (マスノスケ) | Steelhead (スチールヘッド) |
| 1 | 0 | 0 | 24 | 0 | 0 | 0 | 109 | 0 | 1 | 3 | 252 | 0 | |
| 2 | 1 | 0 | 2 | 0 | 2 | 2 | 15 | 0 | 7 | 8 | 21 | 0 | |
| 3 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 10 | 0 | |
| 4 | 1 | 1 | 6 | 0 | 0 | 2 | 45 | 0 | 1 | 1 | 17 | 0 | |
| 5 | 0 | 0 | 2 | 0 | 0 | 1 | 16 | 0 | 3 | 0 | 30 | 0 | |
| 6 | 0 | 0 | 2 | 0 | 1 | 0 | 5 | 0 | 2 | 2 | 20 | 0 | |
| 7 | 1 | 1 | 0 | 0 | 5 | 6 | 8 | 0 | 9 | 13 | 20 | 0 | |
| 8 | 2 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 28 | 9 | 2 | 0 | |
| 9 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 4 | 9 | 0 | 0 | |
| 10 | 4 | 0 | 0 | 0 | 7 | 2 | 0 | 0 | 20 | 8 | 1 | 0 | |
| 11 | 10 | 0 | 0 | 0 | 6 | 2 | 1 | 0 | 18 | 12 | 4 | 0 | |
| 12 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 13 | 3 | 4 | 1 | 0 | 1 | 17 | 0 | 0 | 5 | 37 | 1 | 0 | |
| 14 | 1 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 4 | 36 | 1 | 1 | |
| 15 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |
| 16 | 5 | 8 | 1 | 0 | 2 | 27 | 5 | 0 | 6 | 41 | 25 | 0 | 1 |

46 to the Bering Sea and North Pacific in June–August in 1960

| Mesh size of net: 4.0 Sun | | | | | Mesh size of net: 4.3 Sun | | | | | Mesh size of net: 4.5 Sun | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sockeye (ベニ) | Chum (シロ) | Pink (マス) | King (マスノスケ) | Steelhead (スチールヘッド) | Sockeye (ベニ) | Chum (シロ) | Pink (マス) | King (マスノスケ) | Steelhead (スチールヘッド) | Sockeye (ベニ) | Chum (シロ) | Pink (マス) | King (マスノスケ) |
| 8 | 7 | 288 | 0 | | 3 | 10 | 66 | 1 | | 2 | 0 | 2 | 0 |
| 71 | 17 | 21 | 0 | | 25 | 11 | 1 | 0 | | 13 | 4 | 2 | 0 |
| 3 | 3 | 8 | 0 | | 1 | 1 | 1 | 0 | | 0 | 1 | 0 | 0 |
| 4 | 44 | 26 | 1 | | 1 | 10 | 4 | 0 | | 5 | 6 | 0 | 0 |
| 11 | 28 | 27 | 0 | | 5 | 7 | 2 | 0 | | 9 | 18 | 1 | 1 |
| 8 | 4 | 5 | 0 | | 1 | 1 | 1 | 0 | | 4 | 5 | 0 | 0 |
| 45 | 36 | 6 | 1 | | 18 | 8 | 1 | 0 | | 22 | 3 | 1 | 1 |
| 139 | 29 | 1 | 0 | | 104 | 7 | 0 | 0 | | 62 | 5 | 0 | 0 |
| 36 | 36 | 1 | 0 | | 15 | 17 | 0 | 1 | | 8 | 1 | 0 | 0 |
| 111 | 8 | 2 | 0 | | 31 | 7 | 0 | 0 | | 29 | 4 | 0 | 0 |
| 107 | 25 | 4 | 0 | | 21 | 8 | 0 | 0 | | 29 | 5 | 0 | 0 |
| 13 | 2 | 0 | 0 | | 7 | 3 | 0 | 0 | | 1 | 0 | 0 | 0 |
| 18 | 117 | 0 | 1 | | 3 | 20 | 0 | 0 | | 10 | 11 | 0 | 0 |
| 11 | 63 | 1 | 2 | | 5 | 6 | 0 | 0 | | 4 | 8 | 0 | 0 |
| 1 | 14 | 0 | 0 | | 0 | 1 | 0 | 0 | | 3 | 7 | 0 | 0 |
| 24 | 71 | 54 | 0 | 6 | 10 | 24 | 15 | 0 | 2 | 6 | 19 | 6 | 0 |

## 21. Data on Measurement of Biological Characters of Salmon
(鮭鱒生物学的測定記録)

Specimens were sampled at random from the catch of each mesh size of the net at every fishing operation. Measurement of biological characters was carried out on board.

Age determination by scale reading was made later by Tamotsu Yonemori and Masanao Osako of the Hokkaido Regional Fisheries Research Laboratory.

Tabulation of data was made by J. Hamai, K. Kyushin and T. Kinoshita of the University.

Abbreviations:

| | |
|---|---|
| Sex, F. | Female |
| M. | Male |
| F. L. | Fork length |
| B. W. | Body weight |
| G. W. | Gonad weight |
| Mesh | Mesh size (1 Sun=3.03 cm) |

Table 32. Data on measurement of biological characters of salmon in the "Oshoro Maru" cruise 46 to the Bering Sea and North Pacific in June–August 1960

1. Pink salmon, カラフトマス, (All 2 years old),

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) |
|---|---|---|---|---|---|
| 1 | 2.5 | F | 490 | 1070 | — |
| | | F | 455 | 1060 | 47 |
| | | F | 455 | 1000 | — |
| | | F | 440 | 1040 | — |
| | | F | 440 | 1020 | — |
| | | F | 440 | 1000 | — |
| | | F | 435 | 1010 | 43 |
| | | F | 430 | 1050 | 45 |
| | | F | 430 | 1020 | 36 |
| | | F | 420 | 990 | 48 |
| | | F | 420 | 990 | — |
| | | F | 415 | 990 | — |
| | | F | 410 | 1020 | — |
| | | F | 410 | 980 | — |
| | | F | 410 | 950 | — |
| | | F | 405 | 980 | 38 |
| | | F | 370 | 830 | — |
| | | M | 475 | 1120 | — |
| | | M | 465 | 1130 | — |
| 1 | 2.5 | M | 455 | 1000 | — |
| | | M | 440 | 1090 | — |
| | | M | 440 | 1020 | — |
| | | M | 430 | 1050 | 31 |
| | | M | 430 | 1030 | 11 |
| | | M | 430 | 1020 | 28 |
| | | M | 425 | 1010 | — |
| | | M | 415 | 940 | 21 |
| | | M | 405 | 950 | — |
| | 3.0 | F | 434 | 1020 | — |
| | | F | 430 | 960 | — |
| | | F | 422 | 1000 | 48 |
| | | F | 422 | 960 | — |
| | | F | 421 | 1000 | 41 |
| | | F | 420 | 940 | — |
| | | F | 417 | 950 | 36 |
| | | F | 404 | 910 | — |
| | | F | 401 | 950 | 40 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) |
|---|---|---|---|---|---|
| 1 | 3.0 | M | 432 | 1070 | — |
| | | M | 431 | 1040 | — |
| | | M | 430 | 970 | — |
| | | M | 422 | 970 | — |
| | | M | 420 | 960 | — |
| | | M | 418 | 970 | — |
| | | M | 413 | 950 | 6 |
| | 3.5 | F | 465 | 940 | 33 |
| | | F | 458 | 1070 | 37 |
| | | F | 454 | — | — |
| | | F | 448 | — | — |
| | | F | 448 | — | — |
| | | F | 446 | — | — |
| | | F | 445 | 1020 | 45 |
| | | F | 432 | — | — |
| | | F | 430 | — | — |
| | | F | 428 | 1000 | 46 |
| | | F | 428 | 980 | 43 |
| | | F | 426 | — | — |
| | | F | 425 | — | — |
| | | F | 425 | — | — |
| | | F | 424 | — | — |
| | | F | 424 | — | — |
| | | F | 420 | 940 | 38 |
| | | F | 416 | — | — |
| | | F | 410 | — | — |
| | | M | 460 | 950 | 6 |
| | | M | 460 | — | — |
| | | M | 445 | 980 | 15 |
| | | M | 445 | — | — |
| | | M | 440 | — | — |
| | | M | 432 | — | — |
| | | M | 428 | — | — |
| | | M | 424 | — | — |
| | | M | 418 | 950 | 15 |
| | | M | 418 | — | — |
| | | M | 398 | 890 | 12 |
| | 4.0 | F | 470 | 1120 | 37 |
| | | F | 460 | 1130 | 33 |
| | | F | 450 | 1080 | 24 |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) |
|---|---|---|---|---|---|
| 1 | 4.0 | F | 450 | 1070 | 57 |
| | | F | 445 | 1060 | 52 |
| | | F | 445 | 1040 | 66 |
| | | F | 440 | 1090 | 27 |
| | | F | 432 | 1020 | 47 |
| | | F | 430 | 1030 | 54 |
| | | F | 430 | 1020 | 49 |
| | | F | 430 | 1010 | 59 |
| | | F | 420 | 1000 | 44 |
| | | F | 420 | 980 | 52 |
| | | F | 410 | 950 | 37 |
| | | M | 470 | 1160 | 8 |
| | | M | 470 | 1010 | 10 |
| | | M | 460 | 1100 | 6 |
| | | M | 455 | 1080 | 11 |
| | | M | 450 | 1100 | 6 |
| | | M | 450 | 1050 | 7 |
| | | M | 445 | 1090 | 36 |
| | | M | 445 | 1030 | 23 |
| | | M | 440 | 1070 | 8 |
| | | M | 440 | 1060 | 12 |
| | | M | 435 | 1050 | 17 |
| | | M | 435 | 1020 | 15 |
| | | M | 435 | 1010 | 23 |
| | | M | 430 | 1020 | 19 |
| | | M | 425 | 1000 | 15 |
| | | M | 410 | 1000 | 10 |
| | 4.3 | F | 454 | 1120 | 46 |
| | | F | 438 | 1030 | 33 |
| | | F | 428 | 1050 | 49 |
| | | F | 428 | 1030 | 60 |
| | | M | 480 | 1170 | 6 |
| | | M | 478 | 1120 | 4 |
| | | M | 470 | 1140 | 12 |
| | | M | 470 | 1110 | 3 |
| | | M | 470 | 1050 | 21 |
| | | M | 468 | 1150 | 6 |
| | | M | 464 | 1010 | 16 |
| | | M | 460 | 1110 | 5 |
| | | M | 458 | 1070 | 6 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) |
|---|---|---|---|---|---|
| 1 | 4.3 | M | 454 | 1150 | 10 |
| | | M | 454 | 1060 | 5 |
| | | M | 448 | 1130 | 16 |
| | | M | 444 | 1100 | 7 |
| | | M | 440 | 1050 | 6 |
| | | M | 440 | 1040 | 12 |
| | | M | 436 | 970 | 8 |
| | | M | 434 | 1110 | 13 |
| | | M | 434 | 1030 | 5 |
| | | M | 430 | 1100 | 17 |
| | | M | 428 | 1040 | 12 |
| | | M | 428 | 1030 | 18 |
| | | M | 410 | 930 | 22 |
| 2 | 2.5 | F | 450 | 1010 | — |
| | | M | 458 | 1100 | — |
| | 3.0 | F | 450 | 1100 | — |
| | | F | 420 | 810 | — |
| | | F | 412 | 750 | — |
| | | M | 482 | 1200 | — |
| | | M | 476 | 1300 | — |
| | | M | 440 | 880 | — |
| | | M | 426 | 890 | — |
| | | M | 400 | 700 | — |
| | 3.5 | F | 460 | — | — |
| | | F | 442 | 900 | 46 |
| | | F | 440 | 1160 | 65 |
| | | F | 440 | 980 | 56 |
| | | F | 438 | — | — |
| | | F | 432 | 960 | 54 |
| | | F | 432 | — | — |
| | | F | 430 | 1000 | 47 |
| | | F | 430 | — | — |
| | | F | 428 | — | — |
| | | F | 428 | — | — |
| | | F | 426 | — | — |
| | | F | 426 | — | — |
| | | F | 424 | — | — |
| | | F | 418 | — | — |
| | | F | 418 | — | — |
| | | F | 414 | — | — |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) |
|---|---|---|---|---|---|
| 2 | 3.5 | F | 408 | 790 | 42 |
| | | F | 408 | — | — |
| | | F | 408 | — | — |
| | | M | 464 | — | — |
| | | M | 464 | — | — |
| | | M | 454 | 1180 | 30 |
| | | M | 450 | — | — |
| | | M | 442 | — | — |
| | | M | 440 | 1080 | 28 |
| | | M | 440 | 980 | 29 |
| | | M | 438 | 1090 | 15 |
| | | M | 424 | — | — |
| | | M | 380 | — | — |
| | 4.0 | F | 464 | 1180 | — |
| | | F | 454 | 1240 | — |
| | | F | 450 | 1230 | 46 |
| | | F | 450 | 1210 | — |
| | | F | 446 | 1220 | — |
| | | F | 444 | 1100 | — |
| | | F | 442 | 1090 | 55 |
| | | M | 506 | 1490 | 21 |
| | | M | 492 | 1410 | 10 |
| | | M | 474 | 1340 | 26 |
| | | M | 472 | 1330 | — |
| | | M | 470 | 1320 | — |
| | | M | 470 | 1070 | 16 |
| | | M | 458 | 1100 | 12 |
| | | M | 456 | 1260 | 11 |
| | | M | 454 | 1180 | — |
| | | M | 452 | 1190 | — |
| | | M | 452 | 1140 | — |
| | | M | 442 | 1070 | 17 |
| | | M | 436 | 1080 | 19 |
| | | M | 430 | 950 | — |
| 3 | 2.5 | F | 452 | 900 | 57 |
| | | F | 450 | 1100 | 70 |
| | | F | 448 | 980 | 65 |
| | | F | 438 | 900 | 60 |
| | | F | 432 | 850 | 57 |
| | | F | 432 | — | — |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) |
|---|---|---|---|---|---|
| 3 | 2.5 | F | 430 | — | — |
| | | F | 428 | 1000 | 52 |
| | | F | 428 | 900 | 49 |
| | | F | 424 | — | — |
| | | F | 422 | — | — |
| | | F | 420 | 900 | 53 |
| | | M | 456 | 1100 | 43 |
| | | M | 440 | 1070 | 38 |
| | | M | 420 | — | — |
| | 3.0 | F | 444 | — | — |
| | | F | 432 | 1020 | 52 |
| | | F | 432 | — | — |
| | | F | 432 | — | — |
| | | F | 432 | — | — |
| | | F | 428 | 1000 | 66 |
| | | F | 428 | 900 | 53 |
| | | F | 424 | 1010 | 65 |
| | | F | 424 | — | — |
| | | F | 422 | 950 | 66 |
| | | F | 420 | — | — |
| | | M | 478 | 1300 | 36 |
| | | M | 444 | — | — |
| | | M | 440 | 1000 | 25 |
| | | M | 436 | 1000 | 48 |
| | | M | 434 | — | — |
| | | M | 432 | — | — |
| | | M | 424 | 900 | 23 |
| | | M | 414 | 750 | 18 |
| | | M | 410 | — | — |
| | 3.5 | F | 440 | 1050 | 69 |
| | | F | 440 | — | — |
| | | F | 430 | 900 | 48 |
| | | F | 428 | 1030 | 66 |
| | | F | 428 | 890 | 45 |
| | | F | 422 | 850 | 46 |
| | | F | 421 | 930 | 57 |
| | | F | 414 | 850 | 47 |
| | | M | 454 | 1150 | 31 |
| | | M | 442 | 960 | 34 |
| | | M | 440 | 1010 | 28 |
| 3 | 4.0 | F | 484 | 1280 | 43 |
| | | F | 458 | 1210 | 57 |
| | | F | 456 | 1200 | 65 |
| | | F | 444 | 1050 | 60 |
| | | F | 442 | 1080 | 65 |
| | | F | 440 | 1100 | 52 |
| | | M | 514 | 1690 | 65 |
| | | M | 494 | 1300 | 40 |
| | | M | 490 | 1390 | 51 |
| | | M | 490 | 1350 | 11 |
| | | M | 480 | 1300 | 29 |
| | | M | 478 | 1500 | 40 |
| | | M | 472 | 1400 | 48 |
| | | M | 472 | 1300 | 40 |
| | | M | 468 | 1300 | 29 |
| | | M | 468 | 1170 | 37 |
| | | M | 468 | 1100 | 30 |
| | | M | 464 | 1120 | 37 |
| | | M | 462 | 1280 | 25 |
| | | M | 460 | 1200 | 39 |
| | | M | 460 | 1100 | 39 |
| | | M | 450 | 1100 | 38 |
| | | M | 448 | 1100 | 33 |
| | | M | 448 | 1090 | 18 |
| | | M | 448 | 1090 | 17 |
| | | M | 442 | 1200 | 40 |
| | | M | 440 | 1150 | 39 |
| | | M | 440 | 1130 | 48 |
| | | M | 436 | 1110 | 21 |
| | | M | 432 | 1080 | 55 |
| | 4.3 | F | 452 | 1150 | 80 |
| | | F | 430 | 850 | 43 |
| | | M | 456 | 1260 | 32 |
| | | M | 456 | 1100 | 15 |
| 4 | 3.0 | F | 442 | 1050 | 54 |
| | | F | 436 | 950 | 83 |
| | | F | 434 | 960 | 70 |
| | | F | 434 | 950 | 57 |
| | | F | 422 | 850 | 51 |
| | | F | 420 | 910 | 61 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) |
|---|---|---|---|---|---|
| 4 | 3.0 | M | 444 | 1020 | 38 |
| | | M | 424 | 800 | 25 |
| | | M | 408 | 600 | 10 |
| | 3.5 | F | 482 | — | — |
| | | F | 454 | — | — |
| | | F | 450 | — | — |
| | | F | 448 | 990 | 71 |
| | | F | 444 | 1040 | 65 |
| | | F | 440 | — | — |
| | | F | 436 | 1030 | 53 |
| | | F | 436 | 1000 | 52 |
| | | F | 436 | — | — |
| | | F | 432 | — | — |
| | | F | 430 | — | — |
| | | F | 430 | — | — |
| | | F | 428 | 950 | 63 |
| | | F | 424 | 950 | 51 |
| | | F | 422 | 900 | 51 |
| | | F | 420 | — | — |
| | | F | 420 | — | — |
| | | F | 416 | — | — |
| | | F | 408 | — | — |
| | | M | 474 | — | — |
| | | M | 468 | — | — |
| | | M | 468 | — | — |
| | | M | 456 | — | — |
| | | M | 450 | — | — |
| | | M | 444 | 980 | 37 |
| | | M | 432 | 1030 | 28 |
| | | M | 432 | 920 | 25 |
| | | M | 423 | — | — |
| | | M | 422 | — | — |
| | | M | 414 | — | — |
| | 4.0 | F | 470 | 1370 | 81 |
| | | F | 470 | 1220 | — |
| | | F | 458 | 1210 | 83 |
| | | F | 458 | 1210 | — |
| | | F | 454 | 1200 | 78 |
| | | M | 512 | 1600 | 72 |
| | | M | 506 | 1550 | — |
| 4 | 4.0 | M | 490 | 1500 | — |
| | | M | 490 | 1400 | — |
| | | M | 490 | 1350 | 65 |
| | | M | 488 | 1400 | — |
| | | M | 488 | 1000 | — |
| | | M | 486 | 1300 | — |
| | | M | 484 | 1320 | 43 |
| | | M | 470 | 1100 | — |
| | | M | 468 | 1180 | 36 |
| | | M | 464 | 1150 | — |
| | | M | 462 | 1160 | 33 |
| | | M | 460 | 1200 | 37 |
| | | M | 460 | 1150 | — |
| | | M | 450 | 1100 | 28 |
| | | M | 446 | 1190 | — |
| | 4.3 | M | 452 | 1080 | 30 |
| | | M | 450 | 1120 | 58 |
| | | M | 440 | 1070 | 16 |
| | | M | 440 | 1060 | 32 |
| | 4.5 | M | 512 | 1560 | 31 |
| | | M | 506 | 1600 | 52 |
| | | M | 480 | 1350 | 44 |
| | | M | 460 | 1200 | 32 |
| | | M | 460 | 1100 | 49 |
| | | M | 454 | 1100 | 57 |
| 5 | 3.0 | F | 458 | 1140 | 75 |
| | | F | 458 | 1100 | 72 |
| | | F | 448 | 1050 | 92 |
| | | F | 442 | 1040 | 93 |
| | | F | 440 | 1050 | 78 |
| | | F | 438 | 1000 | 75 |
| | | F | 432 | — | — |
| | | F | 424 | — | — |
| | | F | 424 | — | — |
| | | F | 418 | 950 | 73 |
| | | F | 416 | 850 | 70 |
| | | F | 400 | — | — |
| | | M | 470 | — | — |
| | | M | 456 | 1110 | 44 |
| | | M | 438 | — | — |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) |
|---|---|---|---|---|---|
| 5 | 3.0 | M | 432 | 860 | 24 |
| | 3.5 | F | 474 | 1300 | 110 |
| | | F | 460 | 1130 | 83 |
| | | F | 444 | — | — |
| | | F | 442 | 1050 | 81 |
| | | F | 440 | 1000 | 62 |
| | | F | 440 | — | — |
| | | F | 438 | 1000 | 48 |
| | | F | 438 | 950 | 58 |
| | | F | 436 | 1040 | 90 |
| | | F | 434 | 900 | 60 |
| | | F | 428 | — | — |
| | | M | 450 | 1080 | 32 |
| | | M | 434 | 1010 | 29 |
| | 4.0 | F | 460 | 1220 | 73 |
| | | F | 450 | 1200 | 62 |
| | | F | 444 | 1150 | 72 |
| | | F | 414 | 850 | 53 |
| | | M | 462 | 1150 | 38 |
| 6 | 3.0 | F | 456 | — | — |
| | | M | 437 | — | — |
| 8 | 4.0 | F | 439 | 1000 | 105 |
| | | M | 502 | 1420 | 56 |
| | | M | 482 | 1500 | 25 |
| | | M | 458 | 1180 | 69 |
| 9 | 3.5 | F | 458 | — | — |
| | | M | 414 | — | — |
| 10 | 3.5 | F | 486 | — | — |
| | | M | 515 | — | — |
| | | M | 494 | — | — |
| | | M | 472 | — | — |
| | | M | 462 | — | — |
| | 4.0 | F | 504 | 1430 | — |
| | | F | 498 | 1440 | — |
| | | F | 496 | 1350 | — |
| | | F | 492 | 1480 | — |
| | | F | 486 | 1380 | 73 |
| | | F | 474 | 1200 | 64 |
| 10 | 4.0 | F | 472 | 1310 | — |
| | | M | 520 | 1510 | 40 |
| | | M | 518 | 1650 | 26 |
| | | M | 518 | 1540 | 32 |
| | | M | 508 | 1600 | 11 |
| | | M | 504 | 1620 | 67 |
| | | M | 490 | 1320 | 23 |
| | | M | 486 | 1110 | 6 |
| | | M | 450 | 1100 | 59 |
| | 4.3 | F | 514 | 1550 | 71 |
| | | F | 505 | 1550 | 72 |
| | | M | 500 | 1500 | 47 |
| | | M | 495 | 1450 | 6 |
| | | M | 490 | 1350 | 59 |
| | 4.5 | F | 494 | — | — |
| | | M | 570 | — | — |
| | | M | 522 | — | — |

2. Chum salmon, シロサケ

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 1 | 4.0 | F | 540 | 1580 | — | 5 |
| | | F | 520 | 1800 | 49 | 5 |
| | | F | 590 | 1780 | 76 | 4 |
| | | F | 555 | 2160 | 98 | 4 |
| | | F | 555 | 1480 | 16 | 4 |
| | | F | 480 | 1480 | 32 | 4 |
| | | F | 472 | 1340 | 31 | 4 |
| | | F | 545 | 1760 | 90 | — |
| | | M | 525 | 1810 | 3 | 4 |
| | | M | 510 | 1610 | 5 | 4 |
| | | M | 503 | 1420 | 1 | 4 |
| | | M | 495 | 1500 | 3 | — |
| | 4.3 | F | 590 | 2550 | 65 | 5 |
| | | F | 576 | 2370 | 56 | 4 |
| | | F | 518 | 1590 | 59 | 4 |
| | | M | 500 | 1560 | 16 | 4 |
| | | M | 484 | 1370 | 13 | 4 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 2 | 3.5 | F | 510 | 1750 | 64 | 4 |
| | | F | 498 | 1510 | 27 | 4 |
| | | F | 498 | 1400 | 24 | 4 |
| | | F | 506 | 1400 | 19 | — |
| | | M | 508 | 1650 | 22 | 5 |
| | | M | 524 | 1740 | 1 | 4 |
| | | M | 528 | 1710 | 1 | — |
| | 4.0 | F | 572 | 2330 | 36 | 4 |
| | | F | 546 | 2000 | 120 | 4 |
| | | F | 526 | 2060 | 36 | 4 |
| | | F | 526 | 1640 | 20 | 4 |
| | | F | 524 | 1700 | 38 | 4 |
| | | F | 524 | 1650 | 20 | 4 |
| | | F | 516 | 1410 | 14 | 4 |
| | | F | 506 | 1660 | 51 | 4 |
| | | F | 506 | 1550 | 29 | 4 |
| | | F | 506 | 1460 | 17 | 4 |
| | | F | 498 | 1670 | 35 | 4 |
| | | F | 466 | 1330 | 54 | 4 |
| | | F | 592 | 1530 | 22 | — |
| | | F | 540 | 1600 | 17 | — |
| | | F | 510 | 1410 | 22 | — |
| | | F | 496 | 1400 | 10 | — |
| | | M | 508 | 1480 | 1 | 5 |
| | | M | 526 | 1700 | 18 | 4 |
| | | M | 516 | 1050 | 2 | 4 |
| | | M | 514 | 1550 | 7 | 4 |
| | | M | 510 | 1210 | 7 | 4 |
| | | M | 488 | 1320 | 6 | 3 |
| | 4.3 | F | 534 | 1900 | 35 | 4 |
| | | F | 516 | 1600 | 46 | 4 |
| | | F | 512 | 1510 | 25 | 4 |
| | | F | 500 | 1640 | 32 | 4 |
| | | M | 558 | 2240 | 85 | 4 |
| | 4.5 | F | 548 | 1860 | 17 | 5 |
| | | F | 544 | 1900 | 11 | 4 |
| | | F | 518 | 1800 | 27 | 4 |
| | | M | 554 | 1950 | 12 | 5 |
| | | M | 538 | 1940 | 22 | 4 |
| | | M | 534 | 1960 | 5 | 4 |

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 3 | 2.5 | M | 498 | 1350 | 1 | 4 |
| | 3.0 | F | 518 | 1680 | 25 | 4 |
| | | F | 514 | 1600 | 200 | 4 |
| | | M | 426 | 900 | 1 | 3 |
| | 4.0 | F | 618 | 2900 | 112 | 5 |
| | | F | 612 | 3000 | 230 | 5 |
| | | F | 602 | 2900 | 210 | 5 |
| | | F | 574 | 2300 | 21 | 5 |
| | | F | 572 | 2510 | 53 | 5 |
| | | F | 564 | 2700 | 105 | 5 |
| | | F | 560 | 2000 | 120 | 5 |
| | | F | 540 | 1620 | 17 | 5 |
| | | F | 526 | 1640 | 20 | 5 |
| | | F | 600 | 3000 | 73 | 4 |
| | | F | 580 | 2700 | 88 | 4 |
| | | F | 568 | 2800 | 43 | 4 |
| | | F | 558 | 2210 | 55 | 4 |
| | | F | 554 | 2200 | 75 | 4 |
| | | F | 550 | 2580 | 20 | 4 |
| | | F | 542 | 2060 | 35 | 4 |
| | | F | 526 | 2000 | 62 | 4 |
| | | F | 524 | 1600 | 24 | 4 |
| | | F | 514 | 1670 | 47 | 4 |
| | | F | 484 | 1320 | 12 | 4 |
| | | M | 600 | 2880 | 65 | 5 |
| | | M | 586 | 2320 | 1 | 5 |
| | | M | 562 | 2470 | 45 | 5 |
| | | M | 594 | 2900 | 24 | 4 |
| | | M | 578 | 2930 | 180 | 4 |
| | | M | 576 | 2400 | 53 | 4 |
| | | M | 566 | 2500 | 33 | 4 |
| | | M | 534 | 1500 | 1 | 4 |
| | | M | 520 | 1600 | 1 | 4 |
| | | M | 550 | 2000 | 1 | — |
| | 4.3 | F | 572 | 2700 | 100 | 5 |
| | | F | 560 | 3050 | 240 | 5 |
| | | F | 548 | 2270 | 63 | 4 |
| | | F | 514 | 1630 | 37 | 4 |
| | | F | 600 | 2640 | 52 | — |
| | | M | 640 | 3500 | 80 | 5 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 3 | 4.3 | M | 626 | 3420 | 46 | 5 |
| | | M | 590 | 2800 | 83 | 5 |
| | | M | 612 | 2950 | 16 | 4 |
| | | M | 578 | 3000 | 58 | 4 |
| | | M | 578 | 2560 | 24 | 4 |
| | | M | 576 | 2450 | 27 | 4 |
| | | M | 546 | 2000 | 18 | 4 |
| | 4.5 | F | 564 | 2230 | 47 | 4 |
| | | M | 536 | 2000 | 28 | 4 |
| 4 | 3.5 | F | 578 | 2500 | 66 | 4 |
| | | F | 550 | 1450 | 14 | 4 |
| | | F | 512 | 2550 | 15 | 4 |
| | 4.0 | F | 632 | 2830 | 235 | 5 |
| | | F | 594 | 2610 | 450 | 5 |
| | | F | 594 | 2460 | 200 | 5 |
| | | F | 585 | 2300 | 120 | 5 |
| | | F | 580 | 2600 | 260 | 5 |
| | | F | 570 | 2300 | 300 | 5 |
| | | F | 568 | 2050 | 83 | 5 |
| | | F | 564 | 2250 | 79 | 5 |
| | | F | 542 | 2650 | 58 | 5 |
| | | F | 580 | 2500 | 67 | 4 |
| | | F | 570 | 2400 | 88 | 4 |
| | | F | 564 | 2500 | 280 | 4 |
| | | F | 548 | 2400 | 51 | 4 |
| | | F | 534 | 1990 | 65 | 4 |
| | | F | 588 | 2400 | 285 | — |
| | | F | 570 | 2240 | 190 | — |
| | | F | 548 | 1950 | 43 | — |
| | | M | 574 | 2350 | 26 | 5 |
| | | M | 550 | 2060 | 62 | 5 |
| | | M | 604 | 2650 | 16 | 4 |
| | | M | 586 | 2400 | 15 | 4 |
| | | M | 581 | 2500 | 31 | 4 |
| | | M | 570 | 2680 | 13 | 4 |
| | | M | 532 | 1900 | 12 | 4 |
| | 4. 3 | F | 518 | 1650 | 70 | 4 |
| | | M | 562 | 2120 | 1 | 5 |
| | | M | 610 | 2900 | 27 | 4 |

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 4 | 4.3 | M | 550 | 2060 | 1 | 4 |
| | | M | 546 | 1900 | 1 | 4 |
| | | M | 506 | 1600 | 1 | — |
| | 4.5 | F | 602 | 2710 | 106 | 5 |
| | | F | 602 | — | — | 5 |
| | | F | 564 | 2210 | 22 | 5 |
| | | F | 600 | — | — | 4 |
| | | F | 558 | — | — | 4 |
| | | F | 546 | — | — | 4 |
| | | F | 544 | 1900 | 42 | 4 |
| | | F | 524 | — | — | 4 |
| | | M | 594 | 2590 | — | 5 |
| | | M | 590 | 2750 | — | 5 |
| | | M | 574 | 2340 | 102 | 5 |
| | | M | 566 | 2100 | 22 | 5 |
| | | M | 562 | 2270 | 11 | 5 |
| | | M | 560 | 2690 | 60 | 5 |
| | | M | 552 | 2500 | 3 | 5 |
| | | M | 568 | — | — | 4 |
| | | M | 558 | — | — | 4 |
| | | M | 539 | 2290 | 1 | 4 |
| | | M | 508 | 1710 | 1 | 4 |
| 5 | 2.5 | F | 470 | 1300 | — | — |
| | | M | 492 | 1500 | — | — |
| | 3.0 | F | 510 | 1520 | 18 | 5 |
| | | F | 522 | 1790 | 48 | 4 |
| | | F | 520 | 1550 | 14 | 4 |
| | | F | 514 | 1300 | 15 | 4 |
| | | F | 474 | 1150 | 11 | 4 |
| | | M | 504 | 1500 | 1 | 4 |
| | | M | 500 | 1440 | 1 | 4 |
| | 3.5 | F | 528 | 1560 | 19 | 5 |
| | | F | 514 | 1600 | 65 | 5 |
| | | F | 596 | 2600 | 90 | 4 |
| | | F | 474 | 1250 | 12 | 4 |
| | | F | 492 | 1300 | 14 | — |
| | | M | 552 | 1850 | 1 | 5 |
| | | M | 624 | 3700 | 105 | 4 |
| | | M | 554 | 1750 | 1 | 4 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 5 | 3.5 | M | 500 | 1400 | 1 | 4 |
| | | M | 500 | 1350 | 1 | 4 |
| | | M | 540 | — | — | — |
| | | M | 522 | — | — | — |
| | | M | 518 | — | — | — |
| | | M | 514 | — | — | — |
| | | M | 508 | — | — | — |
| | | M | 500 | — | — | — |
| | | M | 500 | — | — | — |
| | | M | 498 | — | — | — |
| | | M | 498 | — | — | — |
| | | M | 482 | — | — | — |
| | | M | 464 | — | — | — |
| | 4.0 | F | 590 | 2320 | 110 | 5 |
| | | F | 552 | 2000 | 105 | 5 |
| | | F | 600 | 3210 | 130 | 4 |
| | | F | 564 | 2200 | 160 | 4 |
| | | F | 550 | 1900 | 53 | 4 |
| | | F | 520 | 1550 | 13 | 4 |
| | | F | 488 | 1300 | 9 | 4 |
| | | M | 532 | 1750 | 1 | 5 |
| | | M | 530 | 1730 | 1 | 5 |
| | | M | 528 | 1870 | 29 | 5 |
| | | M | 602 | 3120 | 98 | 4 |
| | | M | 542 | 2050 | 1 | 4 |
| | | M | 532 | 1840 | 1 | 4 |
| | | M | 532 | 1780 | 1 | 4 |
| | | M | 530 | 1600 | 1 | 4 |
| | | M | 528 | 1600 | 1 | 4 |
| | | M | 526 | 1800 | 30 | 4 |
| | | M | 524 | 1580 | 1 | 4 |
| | | M | 516 | 1500 | 1 | 4 |
| | | M | 512 | 1650 | 1 | 4 |
| | | M | 504 | 1580 | 1 | 4 |
| | | M | 500 | 1450 | 1 | 4 |
| | | M | 498 | 1420 | 1 | 4 |
| | | M | 498 | 1350 | 1 | 4 |
| | | M | 496 | 1420 | 1 | 4 |
| | | M | 482 | 1330 | 1 | 4 |
| | | M | 568 | 2300 | 1 | — |
| 5 | 4.0 | M | 506 | 1510 | 1 | — |
| | | M | 502 | 1550 | 1 | — |
| | 4.3 | F | 590 | 2340 | 30 | 5 |
| | | F | 540 | 1780 | 15 | 5 |
| | | F | 520 | 1510 | 14 | 4 |
| | | F | 516 | 1780 | 40 | 4 |
| | | M | 480 | 1320 | 1 | 4 |
| | 4.5 | F | 564 | 2320 | 102 | 5 |
| | | F | 564 | 2500 | 103 | 4 |
| | | F | 564 | 2220 | 30 | 4 |
| | | M | 538 | 1810 | 1 | 4 |
| 6 | 2.5 | M | 540 | — | 1 | — |
| | 3.0 | F | 538 | — | — | — |
| | | F | 504 | — | — | — |
| | | F | 496 | — | — | — |
| | | F | 492 | — | — | — |
| | | F | 408 | — | — | — |
| | | M | 498 | — | — | — |
| | | M | 492 | — | — | — |
| | | M | 489 | — | — | — |
| | | M | 488 | — | — | — |
| | 3.5 | M | 486 | — | — | — |
| | 4.0 | F | 500 | 1450 | 13 | 4 |
| | | F | 500 | 1320 | 12 | 4 |
| | | F | 486 | 1350 | 12 | 4 |
| | | F | 484 | 1380 | 11 | 4 |
| | | F | 563 | 2580 | 102 | — |
| | | F | 519 | 1700 | 73 | — |
| | | F | 516 | 1500 | 15 | — |
| | | M | 560 | 1900 | 1 | 5 |
| | | M | 510 | 1500 | 1 | 5 |
| | | M | 530 | 1550 | 1 | 4 |
| | | M | 523 | 1580 | 1 | 4 |
| | | M | 520 | 1550 | 1 | 4 |
| | | M | 520 | 1510 | 1 | 4 |
| | | M | 519 | 1600 | 1 | 4 |
| | | M | 510 | 1450 | 1 | 4 |
| | | M | 508 | 1300 | 1 | 4 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 6 | 4.0 | M | 494 | 1490 | 1 | 4 |
| | | M | 490 | 1510 | 1 | 4 |
| | | M | 486 | 1310 | 1 | 4 |
| | | M | 481 | 1360 | 1 | 4 |
| | 4.3 | F | 527 | 1900 | 16 | 5 |
| | | F | 588 | 2160 | 35 | 4 |
| | | M | 490 | 1400 | 1 | 4 |
| | 4.5 | F | 470 | — | — | — |
| | | M | 506 | — | — | — |
| 7 | 2.5 | F | 590 | — | — | — |
| | | F | 518 | — | — | — |
| | | M | 532 | — | — | — |
| | 3.0 | F | 564 | — | — | — |
| | | F | 552 | — | — | — |
| | | M | 518 | — | — | — |
| | | M | 518 | — | — | — |
| | | M | 502 | — | — | — |
| | | M | 502 | — | — | — |
| | | M | 488 | — | — | — |
| | 3.5 | F | 471 | — | — | — |
| | | M | 504 | — | — | — |
| | | M | 488 | — | — | — |
| | | M | 432 | — | — | — |
| | 4.0 | F | 542 | 2200 | 200 | 5 |
| | | F | 522 | 1480 | 18 | 5 |
| | | F | 603 | 2730 | 195 | 4 |
| | | F | 586 | 2500 | 215 | 4 |
| | | F | 575 | 2600 | 155 | 4 |
| | | F | 556 | 2230 | 73 | 4 |
| | | F | 538 | 1750 | 17 | 4 |
| | | F | 524 | 1590 | 16 | 4 |
| | | F | 520 | 1750 | 16 | 4 |
| | | F | 518 | 1750 | 14 | 4 |
| | | F | 506 | 1450 | 16 | 4 |
| | | F | 498 | 1460 | 13 | 4 |
| | | F | 496 | 1250 | 12 | 4 |
| | | F | 464 | 1200 | 10 | 4 |
| | | F | 614 | 2310 | 35 | — |

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 7 | 4.0 | F | 536 | 1810 | 61 | — |
| | | M | 588 | 2320 | 23 | 4 |
| | | M | 540 | 1750 | 1 | 4 |
| | | M | 530 | 1840 | 79 | 4 |
| | | M | 524 | 1600 | 1 | 4 |
| | | M | 520 | 1680 | 1 | 4 |
| | | M | 516 | 1540 | 1 | 4 |
| | | M | 516 | 1530 | 1 | 4 |
| | | M | 512 | 1600 | 1 | 4 |
| | | M | 512 | 1550 | 1 | 4 |
| | | M | 504 | 1400 | 1 | 4 |
| | | M | 500 | 1400 | 1 | 4 |
| | | M | 496 | 1420 | 1 | 4 |
| | | M | 508 | 1550 | 9 | 3 |
| | | M | 482 | 1250 | 1 | — |
| | 4.3 | F | 528 | 1760 | 24 | 5 |
| | | F | 610 | 2480 | 19 | 4 |
| | | F | 556 | 2200 | 250 | 4 |
| | | F | 542 | 1900 | 15 | 4 |
| | | F | 516 | 1730 | 15 | 4 |
| | | F | 485 | 1480 | 12 | 4 |
| | | M | 574 | 2050 | 1 | 4 |
| | | M | 573 | 2450 | 76 | 4 |
| | | M | 560 | 2000 | 33 | 4 |
| | | M | 550 | 1980 | 1 | 4 |
| | | M | 542 | 1700 | 1 | 4 |
| | | M | 504 | 1410 | 1 | 4 |
| | | M | 464 | 1200 | 1 | 4 |
| 8 | 3.0 | F | 495 | — | — | — |
| | | M | 592 | — | — | — |
| | | M | 514 | — | — | — |
| | | M | 490 | — | — | — |
| | | M | 482 | — | — | — |
| | 4.0 | F | 512 | 1560 | 16 | 4 |
| | | F | 498 | 1400 | 9 | 4 |
| | | F | 498 | 1400 | 9 | 4 |
| | | F | 497 | 1450 | 12 | 4 |
| | | F | 497 | 1300 | 13 | 4 |
| | | F | 492 | 1350 | 14 | 4 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 8 | 4.0 | F | 490 | 1400 | 13 | 4 |
| | | F | 490 | 1350 | 10 | 4 |
| | | F | 489 | 1300 | 8 | 4 |
| | | F | 486 | 1500 | 13 | 4 |
| | | F | 484 | 1350 | 13 | 4 |
| | | F | 484 | 1350 | 10 | 4 |
| | | F | 477 | 1200 | 10 | 4 |
| | | F | 470 | 1160 | 10 | 4 |
| | | F | 500 | 1430 | 11 | — |
| | | M | 552 | 2100 | 1 | 4 |
| | | M | 530 | 1680 | 8 | 4 |
| | | M | 500 | 1430 | 1 | 4 |
| | | M | 496 | 1510 | 1 | 4 |
| | | M | 456 | 1100 | 1 | 3 |
| | | M | 526 | 1700 | 1 | — |
| | | M | 488 | 1350 | 1 | — |
| | 4.3 | F | 541 | 2100 | 90 | 4 |
| | | F | 515 | 2050 | 55 | 4 |
| | | F | 514 | 1540 | 15 | 4 |
| | | F | 510 | 1500 | 15 | 4 |
| | | F | 550 | 1900 | 95 | — |
| | | F | 503 | 1450 | 13 | — |
| | | M | 584 | 2500 | 98 | 4 |
| | | M | 522 | 1650 | 1 | 4 |
| | | M | 496 | 1500 | 1 | 4 |
| | 4.5 | F | 544 | — | — | — |
| | | M | 546 | — | — | — |
| 9 | 2.5 | F | 496 | — | — | — |
| | | M | 507 | — | — | — |
| | 3.0 | F | 581 | — | — | — |
| | | F | 516 | — | — | — |
| | | F | 510 | — | — | — |
| | | F | 504 | — | — | — |
| | | F | 498 | — | — | — |
| | | F | 491 | — | — | — |
| | | M | 516 | — | — | — |
| | | M | 497 | — | — | — |
| | | M | 487 | — | — | — |
| | | M | 480 | — | — | — |

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 9 | 3.0 | M | 480 | — | — | — |
| | | M | 478 | — | — | — |
| | | M | 466 | — | — | — |
| | 3.5 | F | 552 | — | — | — |
| | | F | 548 | — | — | — |
| | | F | 528 | — | — | — |
| | | F | 518 | — | — | — |
| | | F | 516 | — | — | — |
| | | F | 504 | — | — | — |
| | | F | 500 | — | — | — |
| | | F | 500 | — | — | — |
| | | F | 500 | — | — | — |
| | | F | 499 | — | — | — |
| | | F | 495 | — | — | — |
| | | F | 494 | — | — | — |
| | | F | 486 | — | — | — |
| | | F | 468 | — | — | — |
| | | F | 466 | — | — | — |
| | | F | 466 | — | — | — |
| | | M | 554 | — | — | — |
| | | M | 552 | — | — | — |
| | | M | 528 | — | — | — |
| | | M | 525 | — | — | — |
| | | M | 522 | — | — | — |
| | | M | 514 | — | — | — |
| | | M | 511 | — | — | — |
| | | M | 505 | — | — | — |
| | | M | 498 | — | — | — |
| | | M | 495 | — | — | — |
| | | M | 494 | — | — | — |
| | | M | 492 | — | — | — |
| | | M | 482 | — | — | — |
| | | M | 481 | — | — | — |
| | 4.0 | F | 518 | 2460 | 13 | 5 |
| | | F | 562 | 2500 | 155 | 4 |
| | | F | 551 | 2200 | 87 | 4 |
| | | F | 550 | 2060 | 110 | 4 |
| | | F | 543 | 1950 | 17 | 4 |
| | | F | 540 | 2000 | 17 | 4 |
| | | F | 530 | 1800 | 16 | 4 |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 9 | 4.0 | F | 511 | 2400 | 13 | 4 |
| | | F | 506 | 1600 | 10 | 4 |
| | | F | 506 | 1500 | 12 | 4 |
| | | F | 500 | 1300 | 11 | 4 |
| | | F | 488 | 1300 | 9 | 4 |
| | | F | 484 | 1350 | 10 | 4 |
| | | F | 476 | 1250 | 11 | 4 |
| | | F | 506 | 1480 | 11 | — |
| | | M | 563 | 2050 | 1 | 4 |
| | | M | 540 | 2000 | 1 | 4 |
| | | M | 538 | 1800 | 1 | 4 |
| | | M | 530 | 1700 | 1 | 4 |
| | | M | 518 | 1650 | 1 | 4 |
| | | M | 514 | 1700 | 1 | 4 |
| | | M | 512 | 1600 | 1 | 4 |
| | | M | 509 | 1600 | 1 | 4 |
| | | M | 502 | 1500 | 1 | 4 |
| | | M | 497 | 1550 | 1 | 4 |
| | | M | 496 | 1450 | 1 | 4 |
| | | M | 474 | 1380 | 1 | 4 |
| | | M | 502 | 1450 | 1 | 3 |
| | | M | 513 | 1700 | 1 | — |
| | | M | 490 | 1430 | 1 | — |
| | 4.3 | F | 573 | 2210 | 20 | 5 |
| | | F | 522 | 1640 | 16 | 4 |
| | | F | 515 | 1500 | 17 | 4 |
| | | F | 512 | 1530 | 13 | 4 |
| | | F | 504 | 1500 | 14 | 4 |
| | | F | 497 | 1500 | 12 | 4 |
| | | F | 490 | 1500 | 17 | 4 |
| | | F | 485 | 1150 | 10 | 4 |
| | | M | 525 | 1550 | 20 | 5 |
| | | M | 540 | 1820 | 1 | 4 |
| | | M | 533 | 1720 | 1 | 4 |
| | | M | 526 | 1800 | 1 | 4 |
| | | M | 522 | 1550 | 1 | 4 |
| | | M | 518 | 1650 | 1 | 4 |
| | | M | 512 | 1450 | 1 | 4 |
| | | M | 505 | 1500 | 1 | 4 |
| | | M | 497 | 1400 | 1 | 4 |
| 9 | 4.3 | M | 490 | 1390 | 1 | 4 |
| | | M | 483 | 1300 | 1 | 4 |
| | | M | 481 | 1380 | 1 | 4 |
| | | M | 480 | 1290 | 1 | 4 |
| | | M | 519 | 1600 | 1 | — |
| | 4.5 | F | 582 | — | — | — |
| | | F | 565 | — | — | — |
| | | F | 552 | — | — | — |
| | | F | 537 | — | — | — |
| | | F | 518 | — | — | — |
| | | F | 517 | — | — | — |
| | | M | 576 | — | — | — |
| | | M | 570 | — | — | — |
| | | M | 538 | — | — | — |
| | | M | 534 | — | — | — |
| | | M | 505 | — | — | — |
| 10 | 2.5 | F | 414 | — | — | — |
| | | M | 473 | — | — | — |
| | 3.0 | F | 538 | — | — | — |
| | | F | 528 | — | — | — |
| | | F | 518 | — | — | — |
| | | F | 514 | — | — | — |
| | | F | 508 | — | — | — |
| | | F | 494 | — | — | — |
| | | F | 489 | — | — | — |
| | | F | 458 | — | — | — |
| | | M | 524 | — | — | — |
| | | M | 523 | — | — | — |
| | | M | 504 | — | — | — |
| | | M | 498 | — | — | — |
| | | M | 492 | — | — | — |
| | 3.5 | F | 546 | — | — | — |
| | | F | 498 | — | — | — |
| | | F | 474 | — | — | — |
| | | M | 548 | — | — | — |
| | | M | 538 | — | — | — |
| | | M | 536 | — | — | — |
| | | M | 530 | — | — | — |
| | | M | 502 | — | — | — |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 10 | 3.5 | M | 486 | — | — | — |
| | | M | 476 | — | — | — |
| | | M | 469 | — | — | — |
| | | M | 462 | — | — | — |
| | | M | 446 | — | — | — |
| | | M | 446 | — | — | — |
| | 4.0 | F | 550 | 2100 | 18 | 4 |
| | | F | 570 | 2600 | 9 | 3 |
| | | F | 525 | 1760 | 11 | 3 |
| | | F | 520 | 1570 | 11 | 3 |
| | | F | 514 | 1600 | 15 | 3 |
| | | F | 512 | 1520 | 10 | 3 |
| | | F | 510 | 1600 | 10 | 3 |
| | | F | 508 | 1450 | 8 | 3 |
| | | F | 492 | 1300 | 6 | 3 |
| | | F | 514 | 1680 | 9 | — |
| | | M | 552 | 2080 | 1 | 4 |
| | | M | 502 | 1510 | 1 | 4 |
| | | M | 550 | 2080 | 1 | 3 |
| | | M | 547 | 1720 | 1 | 3 |
| | | M | 534 | 1960 | 1 | 3 |
| | | M | 526 | 1700 | 1 | 3 |
| | | M | 522 | 1570 | 1 | 3 |
| | | M | 520 | 1650 | 1 | 3 |
| | | M | 518 | 1450 | 1 | 3 |
| | | M | 514 | 1600 | 1 | 3 |
| | | M | 504 | 1600 | 1 | 3 |
| | | M | 504 | 1540 | 1 | 3 |
| | | M | 494 | 1520 | 1 | 3 |
| | | M | 494 | 1400 | 1 | 3 |
| | | M | 490 | 1100 | 1 | 3 |
| | 4.3 | F | 652 | 3500 | 66 | 4 |
| | | F | 574 | 2200 | 53 | 4 |
| | | F | 582 | 2380 | 115 | 3 |
| | | F | 554 | 2150 | 16 | 3 |
| | | F | 544 | 1850 | 13 | 3 |
| | | F | 522 | 1760 | 13 | 3 |
| | | F | 518 | 1630 | 8 | 3 |
| | | F | 518 | 1610 | 11 | 3 |
| | | F | 500 | 1400 | 10 | 3 |

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 10 | 4.3 | F | 524 | 1800 | 11 | — |
| | | F | 514 | 1690 | 15 | — |
| | | F | 498 | 1500 | 8 | — |
| | | M | 550 | 1900 | 1 | 4 |
| | | M | 530 | 1680 | 1 | 4 |
| | | M | 520 | 1800 | 1 | 4 |
| | | M | 504 | 1700 | 1 | 4 |
| | | M | 596 | 2650 | 1 | 3 |
| | | M | 550 | 1960 | 1 | 3 |
| | | M | 530 | 1850 | 1 | 3 |
| | | M | 522 | 1710 | 1 | 3 |
| | | M | 518 | 1800 | 1 | 3 |
| | | M | 510 | 1660 | 1 | 3 |
| | | M | 510 | 1600 | 1 | 3 |
| | | M | 501 | 1700 | 1 | 3 |
| | 4.5 | F | 590 | — | — | — |
| | | F | 555 | — | — | — |
| | | F | 524 | — | — | — |
| | | F | 524 | — | — | — |
| | | F | 518 | — | — | — |
| | | M | 584 | — | — | — |
| | | M | 578 | — | — | — |
| | | M | 551 | — | — | — |
| | | M | 550 | — | — | — |
| | | M | 528 | — | — | — |
| | | M | 500 | — | — | — |
| | | M | 476 | — | — | — |

3. Sockeye salmon, ベニサケ

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 1 | 4.0 | F | 595 | 2600 | 92 | $7_4$ |
| | | F | 605 | 3300 | 83 | $6_3$ |
| | | F | 600 | 2930 | 77 | $6_3$ |
| | | F | 570 | 2500 | 58 | $6_3$ |
| | | F | 570 | 2450 | 43 | $6_3$ |
| | | F | 522 | 1630 | 51 | $6_3$ |
| | | F | 565 | 2360 | 68 | $5_2$ |
| | | M | 635 | 3300 | 60 | $6_3$ |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 1 | 4.3 | F | 588 | 2700 | 49 | $7_4$ |
| | | F | 524 | 1800 | 18 | — |
| | | M | 490 | 1400 | 1 | $5_3$ |
| | | M | 546 | 2100 | 3 | $4_2$ |
| 2 | 2.5 | F | 500 | 1580 | 38 | $5_3$ |
| | | F | 478 | 1350 | 38 | $5_3$ |
| | 3.0 | F | 594 | 3510 | 105 | $5_2$ |
| | | M | 634 | 3700 | 26 | $5_2$ |
| | | M | 508 | 1670 | 7 | $5_3$ |
| | | M | 482 | 1400 | 15 | $5_3$ |
| | 3.5 | F | 584 | 2820 | 74 | $6_3$ |
| | | F | 578 | 2310 | 45 | $5_2$ |
| | | F | 532 | 1920 | 33 | $5_3$ |
| | | M | 524 | 2020 | 7 | $5_3$ |
| | | M | 508 | 1710 | 5 | $5_3$ |
| | | M | 508 | 1580 | 6 | $5_3$ |
| | 4.0 | F | 584 | 2600 | 46 | $6_3$ |
| | | F | 580 | 2750 | 38 | $6_3$ |
| | | F | 575 | 2300 | 52 | $6_3$ |
| | | F | 562 | 2200 | 47 | $6_3$ |
| | | F | 534 | 2090 | 82 | $5_2$ |
| | | F | 530 | 1750 | 46 | $5_3$ |
| | | F | 514 | 1600 | 33 | $5_3$ |
| | | F | 494 | 1550 | 24 | $5_3$ |
| | | F | 494 | 1530 | 32 | $5_3$ |
| | | F | 495 | 1550 | 30 | $4_2$ |
| | | F | 582 | 3000 | 94 | — |
| | | F | 582 | 2600 | 73 | — |
| | | F | 546 | 2250 | 49 | — |
| | | F | 500 | 1550 | 88 | — |
| | | M | 570 | 2200 | 5 | $7_4$ |
| | | M | 498 | 1550 | 9 | $6_4$ |
| | | M | 600 | 2900 | 12 | $5_2$ |
| | | M | 562 | 2200 | 6 | $5_3$ |
| | | M | 560 | 2400 | 10 | $5_3$ |
| | | M | 550 | 2050 | 5 | $5_3$ |
| | | M | 524 | 1900 | 4 | $5_3$ |
| | | M | 518 | 1900 | 8 | $5_3$ |
| | | M | 516 | 1650 | 32 | $5_3$ |
| 2 | 4.0 | M | 514 | 1700 | 7 | $5_3$ |
| | | M | 510 | 1800 | 7 | $5_3$ |
| | | M | 488 | 1400 | 22 | $5_3$ |
| | | M | 514 | 1850 | 6 | $4_2$ |
| | | M | 635 | 3400 | 7 | — |
| | | M | 612 | 3500 | 18 | — |
| | | M | 526 | 2050 | 7 | — |
| | 4.3 | F | 606 | 2910 | 56 | $7_4$ |
| | | F | 608 | 3200 | 120 | $5_2$ |
| | | F | 530 | 2100 | 68 | $5_2$ |
| | | F | 510 | 1560 | 32 | $5_3$ |
| | | F | 484 | 1600 | 82 | $5_3$ |
| | | M | 614 | 3350 | 14 | $7_3$ |
| | | M | 600 | 2880 | 6 | $6_3$ |
| | | M | 520 | 1960 | 17 | $6_1$ |
| | | M | 554 | 2030 | 5 | $5_3$ |
| | | M | 538 | 2030 | 10 | $5_3$ |
| | | M | 528 | 1760 | 9 | $5_3$ |
| | | M | 512 | 1780 | 14 | $5_3$ |
| | | M | 508 | 1780 | 5 | $5_3$ |
| | | M | 500 | 1500 | 10 | $5_3$ |
| | | M | 566 | 2450 | 49 | $4_1$ |
| | 4.5 | F | 590 | 2880 | 55 | $6_3$ |
| | | F | 542 | 1990 | 74 | $5_3$ |
| | | F | 532 | 2140 | 110 | $4_2$ |
| | | F | 556 | 2230 | 38 | — |
| | | F | 514 | 1730 | 26 | — |
| | | M | 536 | 1870 | 7 | $6_4$ |
| | | M | 532 | 1980 | 6 | $6_4$ |
| | | M | 600 | 2910 | 13 | $5_2$ |
| | | M | 534 | 2700 | 5 | $5_3$ |
| | | M | 510 | 1650 | 4 | $5_3$ |
| | | M | 498 | 1380 | 18 | $5_3$ |
| | | M | 488 | 1540 | 23 | $5_3$ |
| | | M | 540 | 1970 | 7 | $4_2$ |
| | | M | 528 | 1950 | 11 | $4_2$ |
| 3 | 2.5 | M | 592 | 3010 | 19 | $7_4$ |
| | | M | 630 | 3000 | 50 | $6_3$ |
| | | M | 634 | 3500 | 47 | — |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 3 | 3.0 | F | 606 | 3100 | 140 | $7_4$ |
| | 4.0 | F | 610 | 2900 | 105 | $6_3$ |
| | | F | 590 | 3080 | 260 | $6_3$ |
| | | M | 584 | 2710 | 26 | $6_3$ |
| | 4.3 | F | 594 | 3100 | 88 | $5_2$ |
| | 4.5 | F | 602 | 2980 | 61 | $7_4$ |
| | | F | 600 | 2760 | 160 | $6_3$ |
| | | F | 580 | 2700 | 160 | — |
| | | M | 618 | 3350 | 61 | $5_2$ |
| 4 | 3.5 | F | 592 | 2660 | 90 | $6_3$ |
| | | M | 638 | 3420 | 17 | $7_4$ |
| | 4.0 | F | 564 | 2300 | 49 | $7_4$ |
| | | F | 560 | 2400 | 60 | $7_4$ |
| | | F | 610 | 3200 | 110 | $6_3$ |
| | | F | 604 | 3350 | 120 | $6_3$ |
| | | F | 560 | 2450 | 110 | $6_3$ |
| | | F | 550 | 2200 | 53 | $5_2$ |
| | | M | 598 | 2970 | 25 | $6_3$ |
| | | M | 522 | 1800 | 55 | $6_4$ |
| | | M | 572 | 2700 | 27 | $5_2$ |
| | | M | 552 | 2580 | 45 | $4_2$ |
| | 4.3 | F | 598 | 2910 | 83 | $6_3$ |
| | | F | 590 | 2820 | 125 | $6_3$ |
| | | F | 576 | 2500 | 57 | $6_3$ |
| | | F | 552 | 2450 | 130 | $6_3$ |
| | | M | 634 | 3450 | 46 | $6_3$ |
| | 4.5 | F | 600 | 2800 | 130 | $6_3$ |
| | | F | 588 | 2600 | 110 | $6_3$ |
| | | F | 560 | 2480 | 54 | $6_3$ |
| | | M | 606 | 3200 | 21 | $6_3$ |
| | | M | 562 | 2580 | 35 | $5_2$ |
| | | M | 542 | 2060 | 1 | $5_2$ |
| | | M | 574 | 2550 | 27 | $4_2$ |
| | | M | 560 | 2940 | 42 | $4_2$ |
| 5 | 2.5 | M | 536 | 2000 | — | — |
| | 3.0 | F | 534 | 2000 | 155 | $5_2$ |
| | | F | 514 | 1920 | 37 | $5_3$ |

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 5 | 3.0 | M | 474 | 1260 | 24 | $5_3$ |
| | | M | 514 | 2010 | 36 | $4_2$ |
| | 3.5 | F | 594 | 2740 | 110 | $6_3$ |
| | | F | 515 | 1600 | 78 | $4_2$ |
| | | F | 500 | 1600 | 83 | $4_2$ |
| | | F | 500 | 1400 | 52 | $4_2$ |
| | | F | 484 | 1460 | 66 | $4_2$ |
| | | F | 574 | — | — | — |
| | | F | 534 | 2080 | 85 | — |
| | | F | 500 | — | — | — |
| | | M | 544 | 1960 | 46 | $4_2$ |
| | | M | 538 | 2000 | 27 | $4_2$ |
| | | M | 530 | 2050 | 52 | $4_2$ |
| | | M | 518 | 2000 | 47 | $4_2$ |
| | | M | 634 | — | — | — |
| | 4.0 | F | 572 | 2500 | 61 | $6_3$ |
| | | F | 560 | 2500 | 88 | $6_3$ |
| | | F | 558 | 2360 | 95 | $6_3$ |
| | | F | 554 | 2350 | 73 | $6_3$ |
| | | F | 550 | 2300 | 75 | $6_3$ |
| | | F | 602 | 3000 | 100 | $5_2$ |
| | | F | 500 | 1560 | 96 | $5_2$ |
| | | F | 548 | 2100 | 87 | $5_3$ |
| | | F | 525 | 1800 | 70 | $5_3$ |
| | | F | 518 | 1960 | 78 | $5_3$ |
| | | F | 542 | 1630 | 72 | $4_2$ |
| | | F | 510 | 1700 | 92 | $4_2$ |
| | | F | 506 | 1750 | 86 | $4_2$ |
| | | F | 500 | 1550 | 89 | $4_2$ |
| | | F | 494 | 1400 | 13 | $4_2$ |
| | | M | 536 | 2000 | 36 | $6_4$ |
| | | M | 648 | 3550 | 58 | $5_2$ |
| | | M | 590 | 2700 | 29 | $5_3$ |
| | | M | 576 | 2680 | 31 | $5_3$ |
| | | M | 564 | 2650 | 25 | $5_3$ |
| | | M | 544 | 2350 | 34 | $5_3$ |
| | | M | 518 | 1850 | 68 | $5_3$ |
| | | M | 577 | 2170 | 39 | $4_2$ |
| | | M | 560 | 2550 | 51 | $4_2$ |
| | | M | 560 | 2450 | 45 | $4_2$ |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 5 | 4.0 | M | 556 | 2100 | 52 | $4_2$ |
| | | M | 538 | 2200 | 56 | $4_2$ |
| | | M | 536 | 2000 | 36 | $4_2$ |
| | | M | 526 | 2100 | 15 | $4_2$ |
| | | M | 634 | 3600 | 23 | — |
| | | M | 584 | 2700 | 39 | — |
| | 4.3 | F | 486 | 1530 | 107 | $6_3$ |
| | | F | 570 | 2600 | 88 | $5_2$ |
| | | F | 586 | 2650 | 75 | $4_2$ |
| | | F | 518 | 1900 | 93 | $4_2$ |
| | | F | 510 | 1800 | 71 | $4_2$ |
| | | F | 510 | 1710 | 66 | $4_2$ |
| | | F | 490 | 1500 | 39 | $4_2$ |
| | | F | 564 | 2400 | 130 | — |
| | | F | 490 | 1600 | 55 | — |
| | | M | 630 | 3700 | 73 | $6_3$ |
| | | M | 504 | 1560 | 45 | $6_4$ |
| | | M | 650 | 4000 | 23 | $5_2$ |
| | | M | 560 | 2440 | 39 | $5_3$ |
| | | M | 538 | 1850 | 17 | $5_3$ |
| | | M | 568 | 2300 | 13 | $4_2$ |
| | | M | 554 | 2400 | 43 | $4_2$ |
| | | M | 546 | 2100 | 53 | $4_2$ |
| | | M | 540 | 2050 | 50 | $4_2$ |
| | 4.5 | F | 558 | 2210 | 81 | $6_3$ |
| | | F | 570 | 2050 | 95 | $5_2$ |
| | | F | 540 | 2050 | 97 | $5_3$ |
| | | F | 538 | 2010 | 54 | $4_2$ |
| | | F | 588 | 1560 | 86 | $4_2$ |
| | | F | 596 | — | — | — |
| | | F | 576 | 2520 | 76 | — |
| | | F | 565 | 2300 | 45 | — |
| | | F | 548 | 2200 | 59 | — |
| | | F | 520 | — | — | — |
| | | M | 606 | 3000 | 13 | $7_4$ |
| | | M | 572 | 2400 | 22 | $6_4$ |
| | | M | 584 | 3150 | 31 | $5_2$ |
| | | M | 538 | 2100 | 29 | $4_2$ |
| | | M | 512 | 1600 | 1 | $4_2$ |
| | | M | 578 | — | — | — |
| 5 | 4.5 | M | 546 | — | — | — |
| | | M | 544 | 2250 | 21 | — |
| | | M | 544 | — | — | — |
| | | M | 540 | — | — | — |
| | | M | 538 | — | — | — |
| | | M | 516 | — | — | — |
| 6 | 2.5 | F | 487 | — | — | — |
| | | M | 532 | — | — | — |
| | 3.0 | F | 604 | — | — | — |
| | | F | 584 | — | — | — |
| | | F | 546 | — | — | — |
| | | F | 512 | — | — | — |
| | | F | 498 | — | — | — |
| | | F | 485 | — | — | — |
| | | F | 484 | — | — | — |
| | | F | 480 | — | — | — |
| | | M | 607 | — | — | — |
| | | M | 549 | — | — | — |
| | | M | 538 | — | — | — |
| | | M | 526 | — | — | — |
| | | M | 520 | — | — | — |
| | | M | 516 | — | — | — |
| | | M | 515 | — | — | — |
| | | M | 510 | — | — | — |
| | 3.5 | F | 594 | 2620 | 45 | $6_3$ |
| | | F | 520 | — | — | — |
| | | F | 510 | — | — | — |
| | | F | 508 | — | — | — |
| | | F | 496 | — | — | — |
| | | F | 484 | — | — | — |
| | | F | 482 | — | — | — |
| | | F | 478 | — | — | — |
| | | M | 548 | — | — | — |
| | | M | 542 | — | — | — |
| | | M | 522 | — | — | — |
| | | M | 520 | — | — | — |
| | | M | 520 | — | — | — |
| | 4.0 | F | 524 | 2030 | 106 | $4_2$ |
| | | F | 519 | 1920 | 94 | $4_2$ |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 6 | 4.0 | F | 516 | 1820 | 47 | $4_2$ |
| | | F | 506 | 1740 | 110 | $4_2$ |
| | | F | 506 | 1650 | 73 | $4_2$ |
| | | F | 500 | 1900 | 53 | $4_2$ |
| | | F | 486 | 1490 | 81 | $4_2$ |
| | | F | 414 | 1300 | 70 | $4_2$ |
| | | F | 580 | 2730 | 115 | — |
| | | F | 564 | 2400 | 95 | — |
| | | F | 554 | 2250 | 83 | — |
| | | F | 522 | 1900 | 39 | — |
| | | F | 478 | 1410 | 76 | — |
| | | M | 606 | 2980 | 47 | $6_3$ |
| | | M | 565 | 2300 | 23 | $6_1$ |
| | | M | 608 | 2870 | 45 | $5_2$ |
| | | M | 560 | 2360 | 75 | $5_2$ |
| | | M | 576 | 3200 | 36 | $5_3$ |
| | | M | 550 | 2200 | 41 | $4_2$ |
| | | M | 549 | 2270 | 68 | $4_2$ |
| | | M | 548 | 2400 | 48 | $4_2$ |
| | | M | 540 | 2400 | 18 | $4_2$ |
| | | M | 540 | 2300 | 82 | $4_2$ |
| | | M | 538 | 2100 | 40 | $4_2$ |
| | | M | 529 | 2090 | 67 | $4_2$ |
| | | M | 528 | 2000 | 25 | $4_2$ |
| | | M | 526 | 1880 | 31 | $4_2$ |
| | | M | 518 | 1750 | 25 | $4_2$ |
| | | M | 510 | 1750 | 14 | $4_2$ |
| | 4.3 | F | 560 | 2510 | 93 | $6_3$ |
| | | F | 552 | 2200 | 43 | $6_3$ |
| | | F | 576 | 2560 | 130 | $5_2$ |
| | | F | 498 | 1650 | 53 | $5_3$ |
| | | F | 536 | 2000 | 36 | $4_2$ |
| | | F | 524 | 1870 | 85 | $4_2$ |
| | | F | 518 | 1900 | 96 | $4_2$ |
| | | F | 514 | 1920 | 48 | $4_2$ |
| | | F | 512 | 1850 | 125 | $4_2$ |
| | | F | 508 | 1720 | 54 | $4_2$ |
| | | F | 504 | 1800 | 70 | $4_2$ |
| | | F | 498 | 1630 | 86 | $4_2$ |
| | | M | 574 | 2410 | 51 | $7_4$ |

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 6 | 4.3 | M | 590 | 2800 | 23 | $6_3$ |
| | | M | 517 | 1850 | 28 | $5_3$ |
| | | M | 588 | 3000 | 93 | $4_2$ |
| | | M | 568 | 2400 | 60 | $4_2$ |
| | | M | 558 | 2200 | 48 | $4_2$ |
| | | M | 550 | 2300 | 55 | $4_2$ |
| | | M | 550 | 2170 | 52 | $4_2$ |
| | | M | 546 | 2150 | 58 | $4_2$ |
| | | M | 543 | 2150 | 50 | $4_2$ |
| | | M | 530 | 2000 | 42 | $4_2$ |
| | | M | 528 | 2100 | 60 | $4_2$ |
| | | M | 524 | 2040 | 45 | $4_2$ |
| | | M | 522 | 1900 | 33 | $4_2$ |
| | | M | 520 | 1850 | 53 | $4_2$ |
| | | M | 514 | 1870 | 52 | $4_2$ |
| | | M | 480 | 1970 | 48 | $4_2$ |
| | | M | 528 | 1950 | 56 | — |
| | 4.5 | F | 526 | — | — | — |
| | | F | 522 | — | — | — |
| | | F | 522 | — | — | — |
| | | F | 520 | — | — | — |
| | | F | 507 | — | — | — |
| | | F | 507 | — | — | — |
| | | F | 506 | — | — | — |
| | | F | 498 | — | — | — |
| | | M | 574 | — | — | — |
| | | M | 570 | — | — | — |
| | | M | 560 | — | — | — |
| | | M | 554 | — | — | — |
| | | M | 548 | — | — | — |
| | | M | 546 | — | — | — |
| | | M | 542 | — | — | — |
| | | M | 536 | — | — | — |
| | | M | 534 | — | — | — |
| | | M | 534 | — | — | — |
| | | M | 530 | — | — | — |
| | | M | 528 | — | — | — |
| | | M | 526 | — | — | — |
| | | M | 524 | — | — | — |
| | | M | 522 | — | — | — |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 6 | 4.5 | M | 520 | — | — | — |
| | | M | 518 | — | — | — |
| | | M | 516 | — | — | — |
| 7 | 3.0 | F | 508 | — | — | — |
| | | F | 498 | — | — | — |
| | | F | 489 | — | — | — |
| | | F | 484 | — | — | — |
| | | F | 484 | — | — | — |
| | | M | 538 | — | — | — |
| | | M | 516 | — | — | — |
| | | M | 500 | — | — | — |
| | | M | 490 | — | — | — |
| | 3.5 | F | 500 | — | — | — |
| | | M | 624 | — | — | — |
| | | M | 600 | — | — | — |
| | | M | 494 | — | — | — |
| | 4.0 | F | 592 | 2700 | 51 | $6_3$ |
| | | F | 582 | 3180 | 110 | $5_2$ |
| | | F | 548 | 2000 | 37 | $4_2$ |
| | | F | 543 | 2100 | 200 | $4_2$ |
| | | F | 514 | 1700 | 105 | $4_2$ |
| | | F | 508 | 1800 | 103 | $4_2$ |
| | | F | 507 | 1700 | 115 | $4_2$ |
| | | F | 496 | 1650 | 97 | $4_2$ |
| | | F | 492 | 1600 | 98 | $4_2$ |
| | | F | 492 | 1500 | 107 | $4_2$ |
| | | F | 488 | 1600 | 84 | $4_2$ |
| | | F | 485 | 1550 | 79 | $4_2$ |
| | | F | 452 | 1350 | 39 | $4_2$ |
| | | M | 576 | 2500 | 55 | $5_2$ |
| | | M | 546 | 2200 | 62 | $5_3$ |
| | | M | 592 | 3050 | 42 | $4_2$ |
| | | M | 574 | 2250 | 66 | $4_2$ |
| | | M | 542 | 2100 | 28 | $4_2$ |
| | | M | 532 | 2280 | 28 | $4_2$ |
| | | M | 532 | 2000 | 32 | $4_2$ |
| | | M | 524 | 2000 | 49 | $4_2$ |
| | | M | 510 | 1600 | 1 | — |
| | 4.3 | F | 556 | 2410 | 85 | $6_3$ |
| 7 | 4.3 | F | 486 | 1500 | 110 | — |
| | | M | 536 | 2000 | 35 | $5_3$ |
| | | M | 528 | 2080 | 57 | $5_3$ |
| | | M | 520 | 2000 | 47 | $4_2$ |
| 8 | 2.5 | F | 591 | — | — | — |
| | | F | 532 | — | — | — |
| | | F | 508 | — | — | — |
| | | F | 486 | — | — | — |
| | | F | 480 | — | — | — |
| | | F | 474 | — | — | — |
| | | M | 556 | — | — | — |
| | | M | 540 | — | — | — |
| | | M | 536 | — | — | — |
| | | M | 536 | — | — | — |
| | | M | 530 | — | — | — |
| | | M | 512 | — | — | — |
| | 3.0 | F | 512 | — | — | — |
| | | F | 506 | — | — | — |
| | | F | 504 | — | — | — |
| | | F | 496 | — | — | — |
| | | M | 554 | — | — | — |
| | | M | 508 | — | — | — |
| | 3.5 | F | 614 | — | — | — |
| | | F | 542 | — | — | — |
| | | F | 532 | — | — | — |
| | | M | 584 | — | — | — |
| | | M | 564 | — | — | — |
| | | M | 540 | — | — | — |
| | | M | 524 | — | — | — |
| | | M | 426 | — | — | — |
| | 4.0 | F | 519 | 1880 | 105 | $5_3$ |
| | | F | 542 | 2200 | 96 | $4_2$ |
| | | F | 520 | 1850 | 125 | $4_2$ |
| | | F | 520 | 1660 | 125 | $4_2$ |
| | | F | 514 | 1850 | 73 | $4_2$ |
| | | F | 514 | 1750 | 130 | $4_2$ |
| | | F | 510 | 1780 | 90 | $4_2$ |
| | | F | 508 | 1750 | 80 | $4_2$ |
| | | F | 508 | 1710 | 110 | $4_2$ |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 8 | 4.0 | F | 502 | 1900 | 91 | $4_2$ |
| | | F | 500 | 1630 | 73 | $4_2$ |
| | | F | 494 | 1630 | 110 | $4_2$ |
| | | F | 492 | 1400 | 11 | $4_2$ |
| | | F | 488 | 1650 | 99 | $4_2$ |
| | | M | 520 | 1800 | 11 | $7_4$ |
| | | M | 570 | 2720 | 70 | $6_3$ |
| | | M | 540 | 2300 | 38 | $5_3$ |
| | | M | 533 | 1920 | 40 | $5_3$ |
| | | M | 510 | 1650 | 1 | $5_3$ |
| | | M | 565 | 2300 | 90 | $4_2$ |
| | | M | 562 | 2460 | 53 | $4_2$ |
| | | M | 562 | 2250 | 41 | $4_2$ |
| | | M | 540 | 2500 | 63 | $4_2$ |
| | | M | 536 | 2400 | 75 | $4_2$ |
| | | M | 536 | 2050 | 63 | $4_2$ |
| | | M | 534 | 2300 | 79 | $4_2$ |
| | | M | 524 | 2150 | 55 | $4_2$ |
| | | M | 522 | 2000 | 46 | $4_2$ |
| | | M | 504 | 1780 | 76 | $4_2$ |
| | | M | 542 | 2100 | — | — |
| | 4.3 | F | 556 | 2330 | 89 | $6_3$ |
| | | F | 560 | 2220 | 103 | $4_2$ |
| | | F | 492 | 1650 | 104 | $4_2$ |
| | | M | 520 | 1800 | 45 | $5_3$ |
| | | M | 584 | 2540 | 53 | $4_2$ |
| | | M | 575 | 2750 | 27 | $4_2$ |
| | | M | 561 | 3080 | 39 | $4_2$ |
| | | M | 558 | 2550 | 130 | $4_2$ |
| | | M | 556 | 2250 | 38 | $4_2$ |
| | | M | 554 | 2300 | 83 | $4_2$ |
| | | M | 552 | 2280 | 45 | $4_2$ |
| | | M | 543 | 2480 | 49 | $4_2$ |
| | | M | 536 | 1900 | 85 | $4_2$ |
| | | M | 518 | 2050 | 80 | $4_2$ |
| | | M | 514 | 2000 | 46 | $4_2$ |
| | | M | 502 | 1850 | 76 | $4_2$ |
| | | M | 500 | 1500 | 42 | $4_2$ |
| | 4.5 | F | 544 | — | — | — |
| | | M | 642 | — | — | — |
| 8 | 4.5 | M | 561 | — | — | — |
| | | M | 528 | — | — | — |
| | | M | 524 | — | — | — |
| | | M | 522 | — | — | — |
| 9 | 2.5 | F | 336 | — | — | — |
| | | M | 622 | — | — | — |
| | | M | 610 | — | — | — |
| | | M | 342 | — | — | — |
| | 3.5 | F | 620 | — | — | — |
| | | F | 572 | — | — | — |
| | | F | 564 | — | — | — |
| | | F | 509 | — | — | — |
| | | F | 505 | — | — | — |
| | | F | 503 | — | — | — |
| | | M | 608 | — | — | — |
| | | M | 600 | — | — | — |
| | | M | 594 | — | — | — |
| | | M | 556 | — | — | — |
| | | M | 555 | — | — | — |
| | | M | 505 | — | — | — |
| | | M | 498 | — | — | — |
| | 4.0 | F | 599 | 3200 | 205 | $6_3$ |
| | | F | 580 | 3000 | 97 | $6_3$ |
| | | F | 490 | 1350 | 8 | $5_3$ |
| | | F | 552 | 2500 | 49 | $4_2$ |
| | | F | 534 | 2100 | 48 | $4_2$ |
| | | F | 520 | 1700 | 92 | $4_2$ |
| | | F | 510 | 1700 | 115 | $4_2$ |
| | | F | 494 | 1600 | 16 | $4_2$ |
| | | F | 492 | 1600 | 105 | $4_2$ |
| | | M | 657 | 4200 | 83 | $6_3$ |
| | | M | 500 | 1500 | 1 | $5_3$ |
| | | M | 546 | 2100 | 27 | $4_2$ |
| | | M | 499 | 1700 | 69 | $4_2$ |
| | | M | 557 | 2520 | 1 | — |
| | 4.3 | F | 523 | 2150 | 55 | $4_2$ |
| | | F | 518 | 1950 | 115 | $4_2$ |
| | 4.5 | F | 639 | — | — | — |

Table 32. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F.L. (mm) | B.W. (g) | G.W. (g) | Age |
|---|---|---|---|---|---|---|
| 9 | 4.5 | F | 601 | — | — | — |
| | | F | 599 | — | — | — |
| | | F | 572 | — | — | — |
| | | F | 560 | — | — | — |
| | | F | 550 | — | — | — |
| | | M | 637 | — | — | — |
| | | M | 631 | — | — | — |
| 10 | 2.5 | M | 594 | — | — | — |
| | | M | 480 | — | — | — |
| | | M | 386 | — | — | — |
| | | M | 264 | — | — | — |
| | 3.0 | M | 598 | — | — | — |
| | 4.0 | F | 577 | 2200 | 82 | $6_3$ |
| | | F | 554 | 2050 | 145 | $5_3$ |
| | | F | 520 | 1550 | 38 | $5_3$ |
| | | F | 479 | 1250 | 8 | $5_3$ |
| | | F | 512 | 1510 | 155 | $4_2$ |
| | | F | 464 | 1210 | 8 | — |
| | | M | 586 | 2650 | 38 | $5_3$ |
| | | M | 500 | 1300 | 1 | $5_3$ |
| | | M | 586 | 2500 | 42 | $4_2$ |
| | | M | 498 | 1800 | 51 | $4_2$ |
| | | M | 490 | 1430 | 1 | $4_2$ |
| | 4.5 | F | 580 | — | — | — |
| | | F | 540 | — | — | — |
| | | F | 507 | — | — | — |
| | | M | 648 | — | — | — |
| | | M | 598 | — | — | — |

## 22. Sight Records of Sea-Birds, Marine Mammals, Etc.
(海鳥海獣等目視観察記録)

Sea-birds and marine mammals in sight at sea were:

Albatrosses: (アホウドリ類)

*Diomedea nigripes*, Black-footed albatross, クロアシアホウドリ

The body and wings are entirely sooty brown, except white tail coverts. Smaller birds are whiter around the bill and eyes but lack white color in tail coverts. They display excellent gliding flight, and often come close to ships.

*Diomedea immutabilis*, Laysan albatross, レイサンアホウドリ, コアホウドリ

The body is white, but the surface of the wings and the end of the tail are dark brown. The undersurface of the wings is spotted with brownish patches and margined with black. The dark brown tail distinguishes it from the Vega herring gull. However when sighted, they might be confused with the Laysan albatross, Vega herring gull or slaty-backed gull.

Shearwaters: (ミズナギドリ類)

*Puffinus griseus*, Sooty shearwater, ハイイロミズナギドリ

Is distinguished from slender-billed shearwater at sea by its brownish color. This species flies near the surface and often comes close to the ship.

*Puffinus tenuirostris*, Slender-billed shearwater, ハシボソミズナギドリ

The body and wings are sooty black, much deeper black than the sooty shearwater. The bill is very long. It usually flapps, and rarely makes a gliding flight. Never comes close to the ship, often forms a flock.

Fulmars: (フルマカモメ類)

*Fulmarus glacialis rodgersii*, Pacific fulmar, フルマカモメ

The body is white. It is larger than other gulls. Flies slowly.

Storm-petrels: (ウミツバメ類)

*Oceanodroma leucorhoa leucorhoa*, Leach's storm-petrel, コシジロウミツバメ

Upper surface of tail coverts white.

*Oceanodroma furcata*, Fork-taild storm-petrel, ハイイロウミツバメ

Gulls: (カモメ類)

*Larus argentatus vegae*, Vega herring gull, セグロカモメ

The body is entirely white without any black color on the tail, differing from Laysan albatross. Wings greyish black. Feet pinkish. Flies rather high at sea.

*Larus schstisagus*, Slaty-backed gull, オオセグロカモメ

Bigger than Vega herring gull.

*Larus ridibundus sibiricus*, Northern black-headed gull, ユリカモメ

Easily distinguished by coffee-brown head.

*Larus hyperboreus* (*L. glaucus*), Glaucous gull, シロカモメ

The body and wings are entirely white.

*Rissa brevirostris*, Red-legged kittiwake

Head, neck, underparts and tail white. Wings leaden-grey, bill yellow, feet red. A specimen

was shot. This was distinguished from common kittiwake (*Rissa tridactyla*, ミツユビカモメ) by having red feet. Total length 37.2 cm, wing 30.4 cm, tail 13.2 cm, bill 2.5 cm, tarsus 3.0 cm.

Terns: (アジサシ類)

*Sterna aleutica*, Aleutian tern, コシジロアジサシ

Skuas: (トウゾクカモメ類)

*Stercorarius pomarinus mutcheri*, Eastern pomatorhine skua, Pomarine jaeger, トウゾクカモメ

*Stercorarius parasiticus parasiticus*, Arctic skua, Parasitic jaeger, クロトウゾクカモメ

Auks: (ウミスズメ類)

Alexander, W. B. (Birds of the Ocean, 1954, 2nd ed.) mentioned nine species of small auks in the North Pacific, but identification of species while in flight at sea was not easy.

Guillemots: (ウミガラス類)

*Uria columba columba*, Pigeon guillmot, ウミバト

*Uria aalgae inornata*, Bering Island guillemot, ウミガラス, ロッペンチョウ

Flying resembles to tufted puffin, but white underparts distinguish from it.

Puffins: (エトピリカ類)

*Lunda cirhata*, Tufted puffin, エトピリカ, オロロンチョウ, オイランガモ

Distinct by large triangular red bill (at the tip) and long yellow tufts on sides of head, underparts of body deep greyish brown.

*Fratercula corniculata*, Horned puffin, ツノメドリ

Resembles to tufted puffin, but distinguishes from it by white underparts and absence of tufts on head.

Ducks: (カモ類)

*Nyroca fuligula*, Tufted duck, キンクロハジロ?

Migrant land bird: (陸鳥迷鳥)

*Luscinia calliope calliope*, Ruby-throat, ノゴマ

Whales: (クジラ類)

*Balenoptera physalus*, Common rorqual, Finback, ナガスクジラ

Spout vertical. In sounding tail fin is not exposed on the sea surface.

*Physeter catodon*, Sperm whale, Cachalot, マッコウクジラ

Spout directs obliquely forward. In sounding tail fin is raised above the sea surface.

Marine mammals other than whales: (海獣類)

*Eumetopias jubatus*, Northern sea lion, トド

*Callorhinus ursinus*, Northern fur-seal, オットセイ

*Orcinus orca*, Killerwhale, シャチ, サカマタ

Distinct by sword-like dorsal fin which projects almost vertically above the sea surface.

Seals, アザラシ類

Porpoises, イルカ類

NOTE

There was no specialist on sea-birds aboard the ship, however, an amateur ornithologist, Mr. A. Togashi, who was the Purser of the ship, was familiar with birds and made many records of eye

observation at sea.

It was not easy to distinguish the species of birds flying at sea in the distance. The records presented here will contain mistakes, but it is felt that some of the records will be useful for studies of distribution of sea-birds, whales and other big marine life.

It was experienced that along the Aleutian Chain the number of species and individuals of sea-birds were large compared with the open ocean in the south and in the Bering Sea. Many bird flocks also were met around St. Matthew Island in the north-eastern Bering Sea.

Black-footed albatrosses were mainly seen in the south of the Aleutian Chain. The range of air and sea temperatures of sight records of this bird was 6.1°C-20.0°C and 6.8°C-18.9°C respectively. While the ship was underway, when galley refuse was thrown into the sea, the number of black-footed albatrosses in sight increased. When the ship stopped for hydrographic work, albatrosses which had not been in sight before stopping, joined to a flock which was following the ship. They fought for pieces of frozen pork which had been thrown from the ship, making a noisy sound like pyee-pyee. After departing from Seattle every day, except in foggy weather, black-footed albatrosses were caught in sight until the ship sailed to the east as far as 152° E longitude. It was not certain whether the same birds followed the ship from the previous night or if different ones appeared near the ship in the daytime. The fact that the number of albatrosses increased when the ship stopped suggests that birds other than those which followed the ship on the previous day may have come close to the ship. On August 18 at 42°09′N 179°42′W when the ship was drifting for hydrographic observation, a black-footed albatross was hooked by frozen pork bait and hauled up to the deck. It was released after being marked by having a white cloth band tied to its neck and foot. However, on the following several days the ship did not stop because of rough weather, and the marked bird never appeared in sight.

In the present sight records the Laysan albatross might be confused with Vega herring gull or Slaty-backed gull in some cases. However, in case the black tip of the tail was observed with the binoculars, the bird was certainly Laysan albatross. Although Alexander, W. B. (Birds of Ocean, 1954, 2nd ed.) mentioned that Laysan albatross is distributed from Central North Pacific north to about 40°N latitude, the present records indicate that the range of distribution of this species extends as far as north 56°N latitude.

On June 17 at 50°07′N 170°30′E, a land bird flew on to the ship and rested. It slept over night in one corner of the crews quarters and hopped on deck in the daytime, pecking at small crustaceans, such as euphausiids, amphipods and copepods, which dropped from the plankton nets. It stayed on board the ship until June 21 when the purser shot a sea lion, then the bird left the ship because it was scared by the gun-shot.

Table 33. Sight records of sea-birds, marine mammals, etc. in the "Oshoro

| Date and hour (Ship's time) | Ship's state | Approximate position | Sea area | Weather | Sea condition | Air temp. (°C) | Sea surface temp. (°C) |
|---|---|---|---|---|---|---|---|
| June 8 | Underway | | Southeast of Kurile Islands | | | | |
| 〃 9 1810 | 〃 | 43°59′ N 152°58′ E | 〃 | o | Very smooth | 3.5 | 4.6 |
| 〃 10 0820 | 〃 | 44°53′ N 155°28′ E | 〃 | c | 〃 | 3.0 | 4.2 |
| 〃 〃 1410 | 〃 | 45°16′ N 156°30′ E | 〃 | o | Calm | 3.6 | 5.6 |
| 〃 〃 1442 | 〃 | 45°19′ N 156°37′ E | 〃 | o | Very smooth | 3.6 | 4.7 |
| 〃 11 0730 | 〃 | 46°30′ N 159°57′ E | 〃 | o | Smooth | 3.1 | 3.3 |
| 〃 〃 0830–1125 | Stopping at Os 1 | 46°42′ N 159°55′ E | 〃 | c | 〃 | 5.5 | 3.5 |
| 〃 〃 1230 | Underway | 46°46′ N 160°07′ E | 〃 | o | 〃 | 3.7 | 3.5 |
| 〃 〃 1900–2045 | Stopping at Os 2 | 47°10′ N 161°16′ E | 〃 | o | 〃 | 3.8 | 3.7 |
| 〃 12 0500 | During gill-net haul | 47°11′ N 161°19′ E | South of Attu-Kiska Islands | o | Slight | 2.7 | 3.6 |
| 〃 〃 1400 | Underway | 47°52′ N 163°05′ E | 〃 | c | Moderate | 4.8 | 4.2 |
| 〃 〃 1833–2005 | Stopping at Os 3 | 48°09′ N 164°02′ E | 〃 | c | 〃 | 4.2 | 3.3 |
| 〃 13 0833–1045 | Stopping at Os 4 | 48°38′ N 165°58′ E | 〃 | o | Slight | 5.2 | 4.1 |
| 〃 〃 1440 | Underway | 48°53′ N 166°45′ E | 〃 | b | 〃 | 5.8 | 5.1 |
| 〃 〃 1530 | 〃 | 48°56′ N 166°58′ E | 〃 | c | Smooth | 6.1 | 5.2 |
| 〃 〃 1600 | 〃 | 48°57′ N 167°01′ E | 〃 | c | 〃 | 6.1 | 5.2 |
| 〃 14 0500 | During gill-net haul | 49°06′ N 167°33′ E | 〃 | o | Calm | 5.1 | 4.8 |
| 〃 〃 0650 | Underway | 49°12′ N 167°52′ E | 〃 | o | Very smooth | 5.1 | 4.9 |
| 〃 〃 1300 | 〃 | 49°42′ N 169°02′ E | 〃 | c | Smooth | 7.4 | 5.8 |
| 〃 15 0900 | 〃 | 50°33′ N 170°00′ E | 〃 | o | Rather rough | 5.0 | 5.4 |

Maru'' cruise 46 to the Bering Sea and North Pacific in June–August 1960

| Objects in sight | Observer |
|---|---|
| Flocks of auks | A. Togashi |
| 1 northern fur-seal | S. Abe |
| 2 northern fur-seals | S. Nakane |
| 5 porpoises | K. Masuda |
| 1 northern fur-seal | 〃 |
| 1 whale | S. Abe |
| 2 slaty-backed gulls, 1 sooty shearwater | S. Motoda |
| 7~8 sperm whales | K. Masuda |
| 1 Laysan albatross | S. Motoda |
| More than 40 Laysan albatrosses | 〃 |
| 2 Laysan albatrosses | 〃 |
| 2 Laysan albatrosses | 〃 |
| 1 Laysan albatross | 〃 |
| 1 whale | T. Fujii |
| 5 Laysan albatrosses | S. Motoda |
| 1 whale | T. Fujii |
| More than 10 Laysan albatrosses | S. Motoda |
| 2 sperm whales | S. Abe |
| 5 Laysan albatrosses | S. Motoda |
| 1 Aleutian tern | 〃 |

Table 33.

| Date and huor (Ship's time) | Ship's state | Approximate position | Sea area | Weather | Sea condition | Air temp. (°C) | Sea surface temp. (°C) |
|---|---|---|---|---|---|---|---|
| June 15 1645 | Underway | 51°45′ N 170°00′ E | South of Attu-Kiska Islands | o | Moderate | 5.6 | 5.5 |
| 〃 〃 1833–1943 | Stopping at Os 7 | 52°00′ N 170°10′ E | 〃 | o | Slight | 5.7 | 5.6 |
| 〃 〃 2100 | Underway | 52°02′ N 170°10′ E | 〃 | o | 〃 | 5.7 | 5.5 |
| 〃 16 0003 | 〃 | 52°27′ N 170°10′ E | 〃 | r | 〃 | 5.2 | 5.4 |
| 〃 〃 0635 | 〃 | 53°25′ N 170°10′ E | 〃 | d | 〃 | 5.4 | 5.3 |
| 〃 17 0320–0400 | 〃 | 55°07′ N 170°30′ E | Western Bering Sea | r | Moderate | 5.3 | 5.5 |
| 〃 〃 0400–0700 | During gill-net haul and underway | 55°10′ N 170°30′ E | 〃 | d | 〃 | 5.5 | 5.2 |
| 〃 〃 1730–1800 | Underway | 55°55′ N 170°30′ E | 〃 | r | 〃 | 5.1 | 4.9 |
| 〃 19 0330 | During gill-net haul | 57°02′ N 175°03′ E | 〃 | d | Very smooth | 4.8 | 4.9 |
| 〃 〃 1100 | Underway | 56°29′ N 175°01′ E | 〃 | o | 〃 | 5.5 | 5.5 |
| 〃 20 0330 | During gill-net haul | 55°03′ N 175°07′ E | 〃 | d | Smooth | 5.4 | 5.9 |
| 〃 21 1330 | Underway | 53°02′ N 177°10′ E | 〃 | o | Moderate | 6.3 | 5.8 |
| 〃 〃 1545 | 〃 | 53°03′ N 177°46′ E | 〃 | o | 〃 | 6.1 | 6.0 |
| 〃 21 1230 Date doubled | During dredging | 52°33′ N 179°34′ W | 〃 | r | Rather rough | 5.6 | 5.1 |
| 〃 23 0530 | During gill-net haul | 52°55′ N 178°52′ W | 〃 | d | Slight | 4.9 | 5.8 |
| 〃 24 0845–0920 | Underway | 49°42′ N 179°25′ W | South of Central Aleutian Islands | b c | Smooth | 7.3 | 6.8 |
| 〃 〃 1243–1357 | Stopping at Os 20 | 49°01′ N 179°25′ W | 〃 | c | Slight | 6.8 | 6.8 |
| 〃 〃 1835–1932 | Stopping at Os 21 | 48°16′ N 179°32′ W | 〃 | o | Very smooth | 6.2 | 7.0 |
| 〃 25 0740 | Underway | 48°16′ N 176°48′ W | 〃 | o | Moderate | 5.9 | 6.4 |
| 〃 〃 0815 | 〃 | 48°16′ N 176°56′ W | 〃 | o | 〃 | 5.9 | 6.4 |

(Continued)

| Objects in sight | Observer |
|---|---|
| 1 northern fur-seal | S. Nakane |
| 4 Laysan albatrosses | S. Motoda |
| 1 Aleutian tern | 〃 |
| ca 20 porpoises | K. Masuda |
| 1 northern sea lion | S. Abe |
| 2 Leach's storm-petrels, 4 sooty shearwaters, 1 Vega herring gull, 4 Laysan albatrosses | A. Togashi |
| 2 pomarine jaegers, 10～15 Laysan albatrosses | 〃 |
| 1 ruby-throat, 2 Bering Island guillemots, 8 sooty shearwaters, 1 slender-billed shearwater, | |
| 1 red-legged kittiwake, 1 sooty shearwater, | 〃 |
| 1 red-legged kittiwake, 2 storm-petrels, 3 Sooty shearwaters, 3 Laysan albatrosses | 〃 |
| 1 sperm whale | S. Saito |
| 2 sooty shearwaters, 1 Bering Island guillemot, 1 storm-petrel, 2 Laysan albatrosses | A. Togashi |
| 1 big sperm whale | K. Masuda |
| 3～4 killer whales | S. Nakane |
| 3～4 northern sea lions | K. Masuda |
| 1 tufted duck, 1 shearwater, 1 tufted puffin | A. Togashi |
| 30～40 shearwaters | T. Fujii |
| 1 black-footed albatross, 3 shearwaters | S. Motoda |
| 3 Laysan albatrosses | 〃 |
| 7 porpoises | Cadet |
| 5～6 sperm whales | S. Abe |

Table 33.

| Date and hour (Ship's time) | Ship's state | Approximate position | Sea area | Weather | Sea condition | Air temp. (°C) | Sea surface temp. (°C) |
|---|---|---|---|---|---|---|---|
| June 25 0933–1047 | Stopping at Os 22 | 48°19′ N 176°45′ W | South of Central Aleutian Islands | o | Moderate | 6.4 | 6.9 |
| 〃 26 1315–1530 | Stopping at Os 24 | 48°22′ N 172°00′ W | 〃 | o | 〃 | 7.5 | 6.8 |
| 〃 27 0540–0640 | Stopping at Os 26 | 50°01′ N 171°59′ W | 〃 | f | 〃 | 7.0 | 6.7 |
| 〃 〃 1605–1820 | Stopping at Os 27 | 51°16′ N 171°56′ W | 〃 | o | Slight | 7.8 | 7.6 |
| 〃 28 1536 | Underway | 53°37′ N 171°54′ W | Eastern Bering Sea | o | 〃 | 7.2 | 7.1 |
| 〃 〃 1700 | 〃 | 54°00′ N 172°00′ W | 〃 | o | 〃 | 7.2 | 6.8 |
| 〃 29 0430 | During gill-net haul | 54°01′ N 171°56′ W | 〃 | o | Smooth | 6.9 | 7.0 |
| 〃 〃 0800 | Underway | 54°30′ N 171°54′ W | 〃 | o | 〃 | 6.7 | 6.7 |
| 〃 〃 1510–1643 | Stopping at Os 29 | 55°30′ N 171°52′ W | 〃 | o | Slight | 7.6 | 7.0 |
| 〃 30 0330–0530 | During gill-net haul | 55°30′ N 171°49′ W | 〃 | o | Moderate | 6.9 | 6.9 |
| 〃 〃 1500–1617 | Stopping at Os 30 | 56°00′ N 171°44′ W | 〃 | r | Slight | 7.3 | 7.5 |
| July 1 0400 | During gill-net haul | 55°59′ N 171°43′ W | 〃 | o | Smooth | 6.0 | 7.1 |
| 〃 〃 0735 | Underway | 56°22′ N 171°51′ W | 〃 | o | Slight | 6.9 | 7.0 |
| 〃 〃 1330 | 〃 | 57°18′ N 171°57′ W | 〃 | o | Smooth | 7.1 | 7.8 |
| 〃 〃 1500 | 〃 | 57°30′ N 171°51′ W | 〃 | o | Slight | 7.0 | 7.7 |
| 〃 〃 1900–2030 | During gill-net set | 57°40′ N 171°44′ W | 〃 | o | 〃 | 7.2 | 7.7 |
| 〃 2 0300–0600 | During gill-net haul | 57°36′ N 172°04′ W | 〃 | o | Moderate | 7.2 | 7.3 |
| 〃 〃 0800 | Underway | 57°28′ N 172°36′ W | 〃 | o | 〃 | 7.3 | 7.7 |
| 〃 5 0930 | 〃 | 57°57′ N 174°19′ W | 〃 | o | Slight | 6.2 | 7.2 |
| 〃 〃 1325 | During dredging | 58°21′ N 174°00′ W | 〃 | o | Moderate | 7.1 | 6.8 |

(Continued)

| Objects in sight | Observer |
|---|---|
| 1 black-footed albatross | S. Motoda |
| 2 black-footed albatrosses | 〃 |
| 3 tufted puffins | 〃 |
| 1 Laysan albatross | 〃 |
| 1 Northern ful-seal | S. Nakane |
| 2 northern ful-seals | 〃 |
| 3 northern ful-seals, 2 whales | 〃 |
| 1 tufted puffin, 1 storm-petrel, 20～30 red-legged kittiwakes | A. Togashi |
| 1 tufted puffin, 1 northern ful-seal, 1 storm-petrel, 1 pegion guillemot, 6 shearwaters | S. Motoda |
| 10 red-legged kittiwakes, 1 horned puffin, 2 Bering Island guillemots, 6 tufted puffins | 〃 |
| 20 red-legged kittiwakes | 〃 |
| 20 sooty shearwaters | A. Togashi |
| 2 tufted puffins, 6 Bering Island guillemots, 4 Vega herring gulls, 2 Laysan albatorosses, 2 storm-petrels | |
| 3 northern fur-seals | S. Abe |
| 2 northern fur-seals | Cadet |
| 2 northern fur-seals | S. Nakane |
| 3 northern sea-lions, 3 northern fur-seals, More than 10 Bering Island guillemots, 5 storm-petrels, 4 Vega herring gulls<br>3 Pacific fulmars, More than 10 shearwaters, 1 tufted puffin | A. Togashi |
| 1 seal, 2 northarn sea-lions, 9 northern fur-seals, 20 Pacific fulmars, ca 20 sooty shearwaters, ca 20 Bering Island guillemots, ca 20 slender-billed shearwaters, 40～50 fork-tailed storm-peterels, 6 horned puffins, 2 tufted puffins | 〃 |
| 2 whales | S. Abe |
| 20 Bering Island guillemots | S. Motoda |
| 1 Bering Island guillmot, 1 red-legged kittiwake | 〃 |

Table 33.

| Date and hour (Ship's time) | | | Ship's state | Approximate position | Sea area | Weather | Sea condition | Air temp. (°C) | Sea surface temp. (°C) |
|---|---|---|---|---|---|---|---|---|---|
| July | 5 | 1720 | Underway | 58°55′ N 173°34′ W | Eastern Bering Sea | o | Moderate | 6.5 | 7.6 |
| 〃 | 6 | 0900 | 〃 | 60°40′ N 173°22′ W | 〃 (West of St. Matthew I.) | c | Slight | 7.2 | 6.7 |
| 〃 | 〃 | 1135–1152 | Stopping at Os 34 | 61°01′ N 173°24′ W | 〃 (NW of St. Matthew I.) | c | 〃 | 8.1 | 7.7 |
| 〃 | 〃 | 1349 | Underway | 61°00′ N 173°01′ W | 〃 | b c | 〃 | 8.2 | 7.5 |
| 〃 | 7 | 1305–1330 | Stopping at Os 36 | 59°58′ N 170°00′ W | 〃 | o | Moderate | 6.7 | 6.7 |
| 〃 | 11 | 1305–1335 | Stopping at Os 39 | 58°25′ N 166°23′ W | Bristol Bay | c | Very smooth | 8.3 | 7.5 |
| 〃 | 〃 | 1349 | During dredging | 58°30′ N 167°00′ W | 〃 | c | 〃 | 10.2 | 7.8 |
| 〃 | 13 | 1307–1358 | Stopping at Os 42 | 56°50′ N 163°04′ W | 〃 | b | Smooth | 14.2 | 10.3 |
| 〃 | 14 | 0535–0600 | Stopping at Os 44 | 55°07′ N 164°59′ W | 〃 | b | Slight | 10.6 | 8.6 |
| 〃 | 〃 | | Underway | | 〃 | | | | |
| 〃 | 〃 | 1554 | 〃 | 54°10′ N 164°09′ W | South of Alaska Peninsula | b | Calm | 12.4 | 10.9 |
| 〃 | 〃 | 1630 | 〃 | 54°09′ N 164°02′ W | 〃 | b | 〃 | 12.4 | 12.2 |
| 〃 | 〃 | 1600–1800 | 〃 | 54°07′ N 163°58′ W | 〃 | b | 〃 | 12.4 | 11.9 |
| 〃 | 15 | 0840–0918 | Stopping at Os 46 | 54°15′ N 160°40′ W | 〃 | b | Smooth | 13.8 | 11.7 |
| 〃 | 〃 | 1915–2030 | Stopping at Os 47 | 54°14′ N 158°37′ W | 〃 | b c | Slight | 11.8 | 12.1 |
| 〃 | 16 | 0500 | During gill-net haul | 54°12′ N 158°37′ W | 〃 | c | 〃 | 12.1 | 11.9 |
| 〃 | 〃 | 1833–2010 | Stopping at Os 48 | 54°39′ N 156°02′ W | 〃 | o | Smooth | 11.2 | 11.3 |
| 〃 | 17 | 0834–1005 | Stopping at Os 49 | 55°07′ N 153°25′ W | Gulf of Alaska | c | Slight | 13.4 | 12.0 |
| 〃 | 18 | 0630 | Underway | 55°54′ N 149°02′ W | 〃 | c | Moderate | 10.8 | 11.2 |
| 〃 | 〃 | 0832–1118 | Stopping at Os 50 | 55°54′ N 149°24′ W | 〃 | o | Rather rough | 11.0 | 11.3 |

(Continued)

| Objects in sight | Observer |
|---|---|
| 1 northern black-headed gull ? | S. Motoda |
| 1 red-legged kittiwake, several flock of guillemots | 〃 |
| 1 tufted puffin, 2 red-legged kittiwakes. 3 Bering Island guillemots | 〃 |
| 5 killer whales | K. Masuda |
| 2 Bering Island guillemots | S. Motoda |
| 3 Bering Island guillmots, 1 red-legged kittiwake, 50～60 shearwaters | 〃 |
| 1 smoll finback whale | S. Saito |
| 1 northern sea-lion | S. Motoda |
| 3 tufted puffins | 〃 |
| Many flocks of tufted puffin | A. Togashi |
| 2 finback whales | K. Masuda |
| 3～4 northern sea-lions | A. Togashi |
| More than 10 whales, More than 10 northern sea-lions, More than 10 northern fur-seals | S. Nakane |
| 10 sooty shearwaters, 2 Pacific fulmars | S. Motoda |
| 12 sooty shearwaters | 〃 |
| Many shearwaters, 1 black-footed albatross | 〃 |
| 14 sooty shearwaters | 〃 |
| 3 sooty shearwaters | 〃 |
| Many small storm-petrels | A. Togashi |
| 6 sooty shearwaters, 5 black-footed albatrosses | S. Motoda |

Table 33.

| Date and hour (Ship's time) | Ship's state | Approximate position | Sea area | Weather | Sea condition | Air temp. (°C) | Sea surface temp. (°C) |
|---|---|---|---|---|---|---|---|
| July 19 0835–1029 | Stopping at Os 51 | 56°52′ N 145°22′ W | Gulf of Alaska | o | Moderate | 11.9 | 11.0 |
| 〃 〃 1900 | Underway | 57°19′ N 143°15′ W | 〃 | o | 〃 | 11.7 | 11.8 |
| 〃 27 1030 | 〃 | 54°40′ N 133°55′ W | Off the coast of southeast Alaska | o | Smooth | 12.8 | 11.8 |
| Aug. 6 0900 | 〃 | 48°44′ N 126°19′ W | Eastern North Pacific | b | 〃 | 14.4 | 13.8 |
| 〃 7 0900 | 〃 | 49°07′ N 130°18′ W | 〃 | c | Rather rough | 14.6 | 15.2 |
| 〃 〃 1700 | 〃 | 49°09′ N 131°55′ W | 〃 | b c | Moderate | 14.8 | 15.3 |
| 〃 8 0900 | 〃 | 49°11′ N 134°28′ W | 〃 | o | Rather rough | 13.6 | 14.7 |
| 〃 〃 1130 | 〃 | 49°26′ N 135°42′ W | 〃 | o | 〃 | 14.5 | 14.6 |
| 〃 〃 1700 | 〃 | 49°03′ N 136°47′ W | 〃 | o | 〃 | 14.1 | 14.2 |
| 〃 9 0900 | 〃 | 48°28′ N 140°20′ W | 〃 | o | Moderate | 13.0 | 13.9 |
| 〃 10 0900 | 〃 | 48°17′ N 146°05′ W | 〃 | b c | 〃 | 11.8 | 13.3 |
| 〃 〃 1330 | 〃 | 48°16′ N 146°26′ W | 〃 | c | 〃 | 12.0 | 13.2 |
| 〃 〃 1515 | | 48°14′ N 146°31′ W | 〃 | c | 〃 | 12.2 | 13.4 |
| 〃 〃 1530–1759 | Stopping at Os 52 | 48°14′ N 146°32′ W | 〃 | c | 〃 | 13.3 | 13.4 |
| 〃 11 0900 | Underway | 48°01′ N 149°13′ W | 〃 | o | 〃 | 12.5 | 12.5 |
| 〃 〃 1130 | 〃 | 48°00′ N 149°37′ W | 〃 | o | 〃 | 12.2 | 12.5 |
| 〃 〃 1700 | 〃 | 47°58′ N 150°35′ W | 〃 | b c | 〃 | 13.6 | 12.9 |
| 〃 12 0900 | 〃 | 47°39′ N 153°50′ W | Central North Pacific | o | 〃 | 14.0 | 12.2 |
| 〃 〃 1130 | 〃 | 47°45′ N 154°11′ W | 〃 | f | Rather rough | 14.1 | 12.3 |
| 〃 〃 1700 | 〃 | 47°42′ N 155°09′ W | 〃 | f | Moderate | 13.8 | 12.2 |

(Continued)

| Objects in sight | Observer |
|---|---|
| 6 black-footed albatrosses | S. Motoda |
| 20 auks, 3～5 black-footed albatrosses | S. Abe |
| 1 seal, 1 porpoise | S. Saito |
| 2 black-footed albatrosses, 1 glaucous gull | S. Motoda |
| 3 black-footed albatrosses | 〃 |
| 2 black-footed albatrosses | 〃 |
| No bird | 〃 |
| 1 black-footed albatross | 〃 |
| 2 black-footed albatrosses | 〃 |
| 1 black-footed albatross, 1 storm-petrel | 〃 |
| 2 black-footed albatrosses | 〃 |
| 1 finback whale | K. Masuda |
| 1 finback whale | S. Nakane |
| 2 northern fur-seals, 2 black-footed albatrosses, 1 storm-petrel | S. Motoda |
| No bird | 〃 |
| 3 black-footed albatrosses | 〃 |
| 2 black-footed albatrosses | 〃 |
| No bird | 〃 |
| 2 black footed albatrosses | 〃 |
| 1 black-footed albatross | 〃 |

Table 33.

| Date and hour (Ship's time) | Ship's state | Approximate position | Sea area | Weather | Sea condition | Air temp. (°C) | Sea surface temp. (°C) |
|---|---|---|---|---|---|---|---|
| Aug. 13 0900 | Underway | 47°19′ N 157°51′ W | Central North Pacific | r | Rather rough | 13.7 | 11.7 |
| 〃 〃 1130 | 〃 | 47°16′ N 158°17′ W | 〃 | r | 〃 | 13.4 | 11.7 |
| 〃 〃 1700 | 〃 | 47°07′ N 159°15′ W | 〃 | r | Slight | 13.6 | 11.8 |
| 〃 14 0900 | 〃 | 46°36′ N 161°28′ W | 〃 | r | Moderate | 13.9 | 12.0 |
| 〃 〃 1130 | 〃 | 46°27′ N 161°41′ W | 〃 | r | Rather rough | 13.7 | 12.0 |
| 〃 〃 1700 | 〃 | 46°11′ N 162°24′ W | 〃 | f | Slight | 12.8 | 11.8 |
| 〃 15 0900 | 〃 | 45°34′ N 164°56′ W | 〃 | o | Smooth | 12.3 | 12.3 |
| 〃 〃 1130 | 〃 | 45°22′ N 165°45′ W | 〃 | o | 〃 | 12.6 | 12.8 |
| 〃 〃 1700 | 〃 | 45°00′ N 166°30′ W | 〃 | f | Slight | 13.5 | 13.0 |
| 〃 16 0900 | 〃 | 43°55′ N 169°08′ W | 〃 | o | 〃 | 12.3 | 13.2 |
| 〃 〃 1130 | 〃 | 43°26′ N 169°49′ W | 〃 | o | 〃 | 13.6 | 13.7 |
| 〃 〃 1200 | 〃 | 43°24′ N 169°54′ W | 〃 | o | 〃 | 13.6 | 13.7 |
| 〃 〃 1530–1653 | Stopping at Os 53 | 43°09′ N 170°30′ W | 〃 | o | 〃 | 13.2 | 13.9 |
| 〃 17 0900 | Underway | 41°59′ N 173°28′ W | 〃 | c | 〃 | 16.0 | 15.0 |
| 〃 〃 1130 | 〃 | 41°58′ N 174°00′ W | 〃 | c | 〃 | 17.1 | 15.8 |
| 〃 〃 1900 | 〃 | 42°02′ N 175°09′ W | 〃 | d | Moderate | 15.7 | 15.4 |
| 〃 18 0900 | 〃 | 42°05′ N 178°25′ W | 〃 | f | Rather rough | 17.9 | 15.5 |
| 〃 〃 0930 | 〃 | 42°06′ N 178°31′ W | 〃 | f | Moderate | 17.6 | 15.5 |
| 〃 〃 1130 | 〃 | 42°09′ N 178°55′ W | 〃 | f | 〃 | 17.5 | 15.6 |
| 〃 〃 1532–1726 | Stopping at Os 54 | 42°09′ N 179°42′ W | 〃 | f | 〃 | 17.3 | 15.7 |

(Continued)

| Objects in sight | Observer |
|---|---|
| No bird | S. Motoda |
| 1 black-footed albatross | 〃 |
| No bird | 〃 |
| 1 black-footed albatross | 〃 |
| 3 black-footed albatrosses | 〃 |
| 2 black-footed albatrosses | 〃 |
| 2 black-footed albatrosses | 〃 |
| 3 black-footed albatrosses | 〃 |
| 4 black-footed albatrosses | 〃 |
| 2 black-footed albatrosses | 〃 |
| 3 black-footed albatrosses | 〃 |
| 1 sperm whale | K. Masuda |
| 8 black-footed albatrosses, 1 Laysan albatross, Many storm-petrels | S. Motoda |
| No bird | 〃 |
| 3 black-footed albatrosses, 1 Laysan albatross, 1 storm-petrel | 〃 |
| 1 black-footed albatross | 〃 |
| No bird | 〃 |
| 2 black-footed albatrosses | 〃 |
| No bird | 〃 |
| 6 black-footed albatrosses, 1 Laysan albatross | 〃 |

Table 33.

| Date and hour (Ship's time) | Ship's state | Approximate position | Sea area | Weather | Sea condition | Air temp. (°C) | Sea surface temp. (°C) |
|---|---|---|---|---|---|---|---|
| Aug. 20 0800 | Underway | 42°15′ N 177°36′ E | Central North Pacific | o | Moderate | 16.0 | 17.9 |
| 〃 〃 1600 | 〃 | 42°24′ N 176°26′ E | 〃 | b c | Rather rough | 14.3 | 15.3 |
| 〃 21 1130 | 〃 | 42°08′ N 173°04′ E | 〃 | o | Slight | 14.1 | 15.3 |
| 〃 〃 1430 | 〃 | 42°08′ N 172°28′ E | 〃 | o | 〃 | 14.6 | 15.1 |
| 〃 22 0800 | 〃 | 42°08′ N 169°02′ E | 〃 | o | 〃 | 14.1 | 16.4 |
| 〃 〃 1200 | 〃 | 42°04′ N 168°15′ E | 〃 | c | 〃 | 14.7 | 15.8 |
| 〃 〃 1330 | 〃 | 42°04′ N 167°57′ E | 〃 | o | Smooth | 14.2 | 15.1 |
| 〃 〃 1600 | 〃 | 42°04′ N 167°27′ E | 〃 | o | 〃 | 13.4 | 15.0 |
| 〃 23 0200 | 〃 | 42°08′ N 165°40′ E | Eastern North Pacific | o | Slight | 13.2 | 14.1 |
| 〃 〃 0900 | 〃 | 42°33′ N 164°06′ E | 〃 | o | Very smooth | 14.4 | 14.3 |
| 〃 〃 1500 | 〃 | 42°25′ N 162°53′ E | 〃 | c | Moderate | 15.2 | 14.6 |
| 〃 〃 1530 | 〃 | 42°52′ N 162°47′ E | 〃 | o | Slight | 14.9 | 14.5 |
| 〃 〃 1720 | 〃 | 42°52′ N 162°23′ E | 〃 | o | 〃 | 14.7 | 14.4 |
| 〃 24 0800 | 〃 | 42°54′ N 159°00′ E | 〃 | c | Rather rough | 14.8 | 14.9 |
| 〃 〃 1130 | 〃 | 43°14′ N 158°18′ E | 〃 | b c | Rough | 15.4 | 16.5 |
| 〃 〃 1300 | 〃 | 43°19′ N 158°00′ E | 〃 | o | Rather rough | 16.4 | 16.5 |
| 〃 〃 1730–1745 | 〃 | 43°30′ N 157°13′ E | 〃 | o | 〃 | 15.5 | 16.1 |
| 〃 25 0530 | 〃 | 43°30′ N 154°54′ E | 〃 | d | Moderate | 17.6 | 17.1 |
| 〃 〃 0800 | 〃 | 43°40′ N 154°24′ E | 〃 | o | 〃 | 17.8 | 17.5 |
| 〃 〃 1100 | 〃 | 43°20′ N 153°46′ E | 〃 | o | 〃 | 17.4 | 15.8 |

(Continued)

| Objects in sight | Observer |
|---|---|
| 5 black-footed albatrosses | S. Motoda |
| 4 black-footed albatrosses | 〃 |
| 1 Laysan albatross, 20～30 slender-billed shearwaters | 〃 |
| 2 slender-billed shearwaters | 〃 |
| 2 whales | S. Nakane |
| 1 sword fish | T. Fujii |
| No bird | S. Motoda |
| No bird | 〃 |
| When the light was turned on toward the sea surface, small fish and squids (?) came together in abundance. | K. Masuda |
| 1 black-footed albatross | K. Oshite |
| 1 black-footed albatross | S. Motoda |
| 3 black-footed albatrosses | S. Sakai |
| 1 Laysan albatross, 4 black-footed albatrosses | K. Oshite |
| 4 Laysan albatrosses | 〃 |
| 2 black-footed albatrosses | S. Motoda |
| 1 black-footed albatross, 4 storm-petrels | 〃 |
| 3 black-footed albatrosses | K. Oshite |
| 1 sword fish, 1 shark | S. Nakane |
| 2 sword fish | K. Oshite |
| 1 black-footed albatross | 〃 |

Table 33.

| Date and hour (Ship's time) | Ship's state | Approximate position | Sea area | Weather | Sea condition | Air temp. (°C) | Sea surface temp. (°C) |
|---|---|---|---|---|---|---|---|
| Aug. 25 1230 | Underway | 43°15′ N 153°28′ E | Eastern North Pacific | f | Moderate | 17.7 | 15.2 |
| 〃 26 1130 | 〃 | 41°59′ N 152°10′ E | 〃 | f | Rather rough | 20.4 | 18.9 |
| 〃 〃 1800 | 〃 | 41°47′ N 151°04′ E | 〃 | f | High sea | 20.1 | 18.6 |
| 〃 27 0830 | 〃 | 42°14′ N 149°02′ E | 〃 | b | Moderate | 19.9 | 18.8 |
| 〃 〃 0950 | 〃 | 42°15′ N 148°51′ E | 〃 | b | 〃 | 20.4 | 19.1 |
| 〃 28 0800 | 〃 | 41°54′ N 144°39′ E | 〃 | c | Slight | 21.3 | 21.0 |

(Continued)

| Objects in sight | Observer |
|---|---|
| 1 sun fish | A. Togashi |
| 2 terns, 1 black-footed albatross | S. Motoda |
| 2 sun fish | A. Togashi |
| ca 40 Vega herring gulls | M. Omori |
| Many sperm whales | S. Motoda |
| 30～40 storm-petrels | 〃 |

# V

# THE "HOKUSEI MARU" CRUISE 8 (1-4) TO THE NORTH PACIFIC AND OKHOTSK SEA IN JUNE-AUGUST 1960

Cruise 8-(1) to the middle Kuriles in June 1960
Cruise 8-(2) to the northern Kuriles in June-July 1960
Cruise 8-(3) to the Okhotsk Sea in July 1960
Cruise 8-(4) to the Okhotsk Sea in August 1960

## 北 星 丸 第 8 次 (1-4) 航 海

8-(1) 昭和35年6月　　中部千島海域
8-(2) 昭和35年6月—7月　北 千 島 海 域
8-(3) 昭和35年7月　　オホーツク海域
8-(4) 昭和35年8月　　オホーツク海域

（一部水産庁委託調査）

## 1. Cruise Report
（航海報告）

First cruise 8-(1)

| | | |
|---|---|---|
| Departure from Hakodate | June 5 | （函館出港） |
| First hydrographic cast | June 6 | （海洋観測開始） |
| First salmon gill-net set | June 7 | （さけます流網開始） |
| Passed northern Itrup Pass | June 10 | （北得撫水道通過） |
| Last salmon gill-net set | June 12 | （さけます流網終了） |
| Last hydrographic cast | June 13 | （海洋観測終了） |
| Arrival at Rumoi | June 14 | （留萌入港） |
| Departure from Rumoi | June 15 | （留萌出港） |
| Return to Hakodate | June 16 | （函館帰港） |

Covered 1477 miles in total, 11 days at sea, 1 day in port
（全航程1477浬，航海日数11日，碇泊日数1日）

Second cruise 8-(2)

| | | |
|---|---|---|
| Departure from Hakodate | June 21 | （函館出港） |
| First hydrographic cast | June 23 | （海洋観測開始） |
| First salmon gill-net set | June 25 | （さけます流網開始） |
| Passed Onnekotan Pass | June 27 | （温根古丹水道通過） |
| Last salmon gill-net set | June 29 | （さけます流網終了） |
| Passed northern Itrup Pass | June 29 | （北得撫水道通過） |
| Last hydrographic cast | June 30 | （海洋観測終了） |
| Return to Hakodate | July 2 | （函館帰港） |

Covered 1808 miles in total, 12 days at sea
（全航程1808浬，航海日数12日）

Third cruise 8-(3)

| | | |
|---|---|---|
| Departure from Hakodate | July 9 | （函館出港） |
| First hydrographic cast | July 11 | （海洋観測開始） |
| First salmon gill-net set | July 12 | （さけます流網開始） |
| Last salmon gill-net set, visited crab-cannery ship "Shiranesan Maru" and "Kaiyo Maru" | July 22 | （さけます流網終了，蟹工船白根山丸，開洋丸見学） |
| Return to Hakodate | July 29 | （函館帰港） |

Covered 2899 miles in total, 21 days at sea
（全航程2899浬，航海日数21日）

Fourth cruise 8-(4)

| | | |
|---|---|---|
| Departure from Hakodate | August 4 | （函館出港） |
| First hydrographic cast | August 6 | （海洋観測開始） |
| First salmon gill-net set | August 7 | （さけます流網開始） |
| Last salmon gill-net set | August 20 | （さけます流網終了） |
| Last hydrographic cast | August 22 | （海洋観測終了） |
| Stopped off Wakkanai | August 23-24 | （稚内沖仮泊） |
| Arrival at Otaru | August 25 | （小樽入港） |

*V. Hokusei Maru Cruise 8 (1-4) to the North Pacific and Okhotsk Sea*

| | | |
|---|---|---|
| Departure from Otaru | August 25 | (小樽出港) |
| Return to Hakodate | August 26 | (函館帰港) |
| Covered 3208 miles in total, 23 days at sea | | (全航程3208浬, 航海日数23日) |

## 2. Vessel Personnel
(乗 船 者)

Captain: (船長) Seikichi Mishima (三 島 清 吉)

Crew: (乗組員)

| | | |
|---|---|---|
| Chief Officer | Shoichi Yamamoto | (一等航海士 山 本 昭 一) |
| Second Officer | Vacant | |
| Third Officer | Kenji Shimazaki | (三等航海士 島 崎 健 二) |
| Junior third Officer | Keiji Sudo (only on the third crurise) | (次席三等航海士 須 藤 慶 司) |
| Chief Engineer | Yuhachi Yanagiya | (機 関 長 柳 谷 勇 八) |
| First Engineer | Minoru Fujita | (一等機関士 藤 田 実) |
| Second Engineer | Sho Takashimizu | (二等機関士 高清水 祥) |
| Wireless Operator | Shiro Noguchi | (無線通信士 野 口 四 郎) |

and 12 men [cruise 8-(1)], 13 men [cruise 8-(2)(3)(4)]

Research leader on cruise 8-(1-4): Captain Seikichi Mishima (調査団長 三 島 清 吉)

Research men on cruise 8-(1): (調査員)

| | | |
|---|---|---|
| Lecturer | Kenichiro Kyushin (Salmon) | (講師 久新健一郎 鮭鱒) |
| Research Assistant | Masaaki Fukuda (Fishery hydrography) | (助手 福田雅明 漁業水理) |

Officer of the Hokkaido Regional Fisheries Research Laboratory
Yasuo Sasakawa (Salmon) (北海道区水産研究所技官 笹川康雄 鮭鱒)

Cadets on cruise 8-(1): (実習生)

Twenty cadets of Undergraduate Course of General Fishery (漁業学科 学生 20名)

A total of 42 persons on cruise 8-(1): (総員 42名)

Research men on cruise 8-(2): (調査員)

| | | |
|---|---|---|
| Lecturer | Yoshio Akiba (Physical oceanography) | (講師 秋葉芳雄 海洋物理) |
| Research Assistant | Tetsuichiro Kinoshita (Salmon) | (助手 木下哲一郎 鮭鱒) |

Officer of the Hokkaido Regional Fisheries Research Laboratory
Yasuo Sasakawa (Salmon) (北海道区水産研究所技官 笹川康雄 鮭鱒)

Cadets on cruise 8-(2): (実習生)

Twenty cadets of Undergraduate Course of General Fishery (漁業学科 学生 20名)

A total of persons on cruise 8-(2): (総員 43名)

Research men on cruise 8-(3): (調査員)

Assistant Professor　Motokazu Ueno (Fisheries)　(助教授　上野元一　漁業)
Lecturer　Yoshio Akiba (Physical oceanography)
(講師　秋葉芳雄　海洋物理)
Officer of the Hokkaido Regional Fisheries Research Laboratory
Yasuo Sasakawa (Salmon)
(北海道区水産研究所技官　笹川康雄　鮭鱒)
Undergraduate student　Yasufumi Sasaki (Zoology)　(学生　佐々木保文　動物)
Undergraduate student　Susumu Watanabe (Physical oceanography)
(学生　渡部　進　海洋物理)

Cadets on cruise 8-(3): (実習生)
Twelve cadets of Undergraduate Course of Pelagic Fishery and
one cadet from Faculty of Fisheries, Nagasaki University
(遠洋漁業学科学生　12名及長崎大学水産学部学生　1名)

A total of 39 persons on cruise 8-(3): (総員　39名)

Research men on cruise 8-(4): (調査員)
Assistant Proffessor　Motokazu Ueno (Fisheries)　(助教授　上野元一　漁業)
Research Assistant　Miki Oguro (Chemistry)　(助手　小黒美樹　化学)
Officer of the Hokkaido Regional Fisheries Research Laboratory
Yasuo Sasakawa (Salmon)
(北海道区水産研究所技官　笹川康雄　鮭鱒)
Junzo Abe (Biology)　(阿部準三　生物)
Undergraduate Student　Masaru Igarashi (Zoology)　(学生　五十嵐　傑　動物)

Cadets on cruise 8-(4): (実習生)
Ten cadets of Undergraduate Course of Pelagic Fishery　(遠洋漁業学科学生　10名)

A total of 35 persons on cruise 8-(4): (総員　35名)

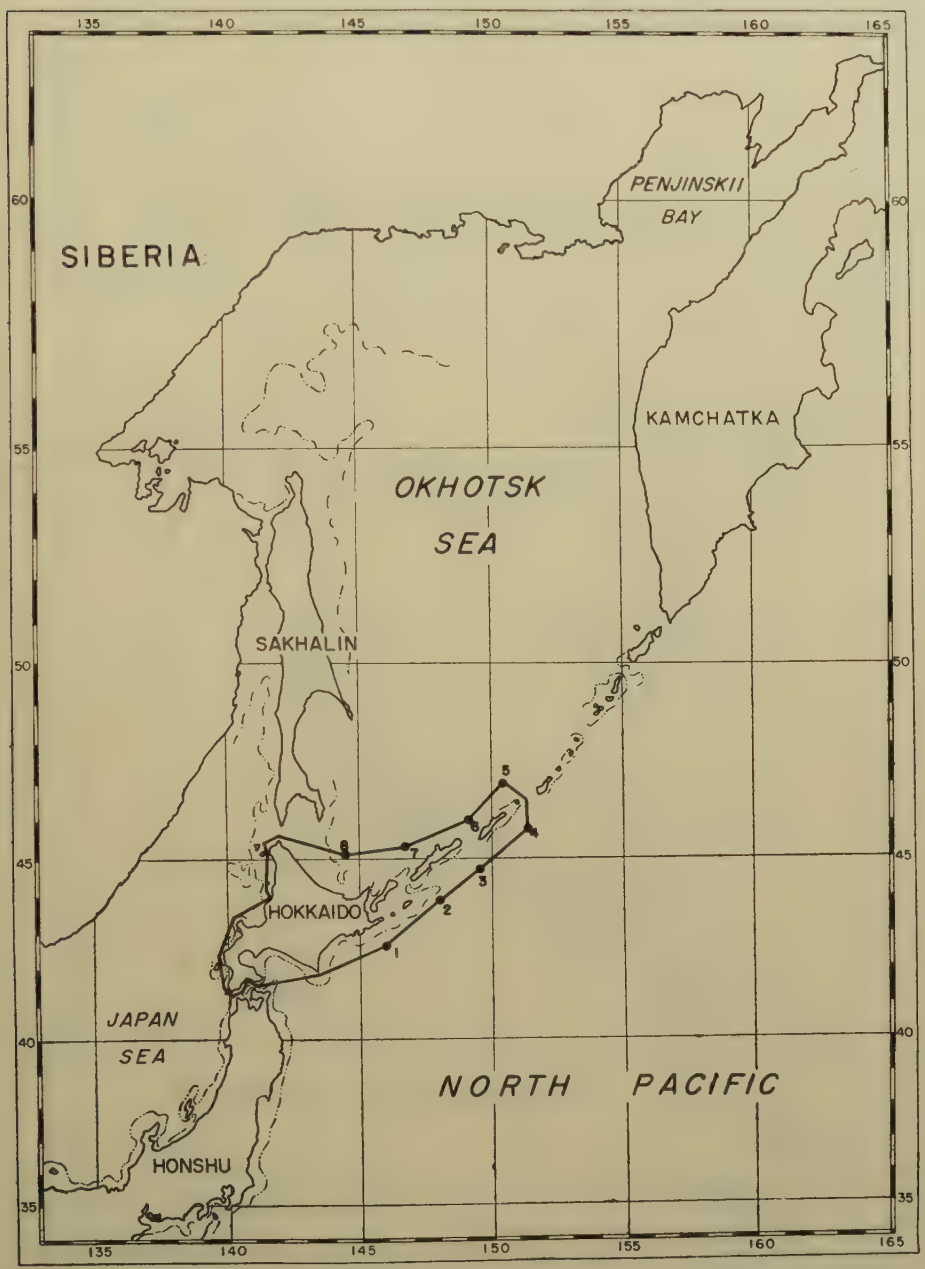



Fig. 25. Track and hydrographic stations in the "Hokusei Maru" cruise 8 (1) to the middle Kurile Islands in June 1960

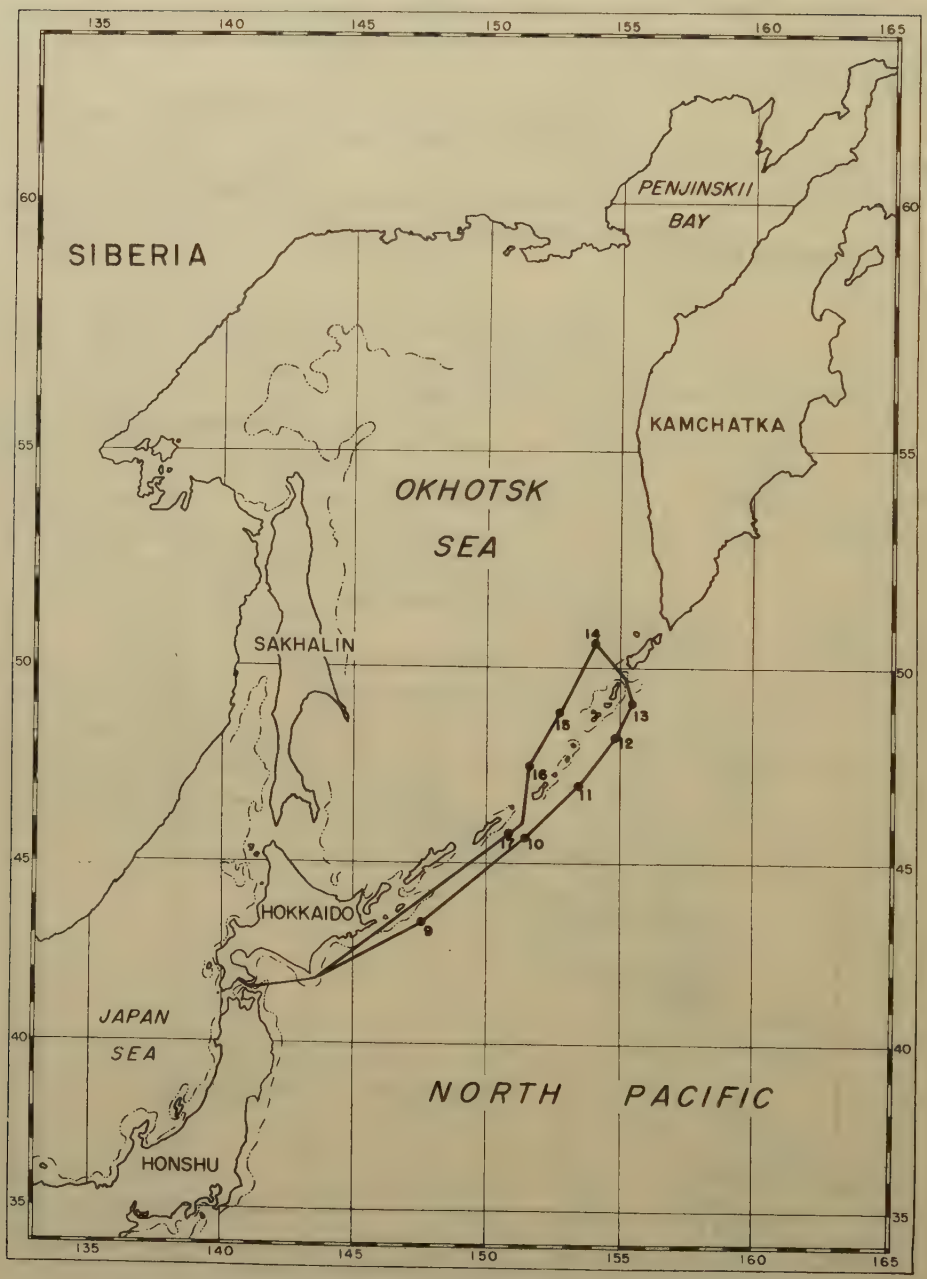



Fig. 26. Track and hydrographic stations in the "Hokusei Maru" cruise 8 (2) to the northern Kurile Islands in June–July 1960

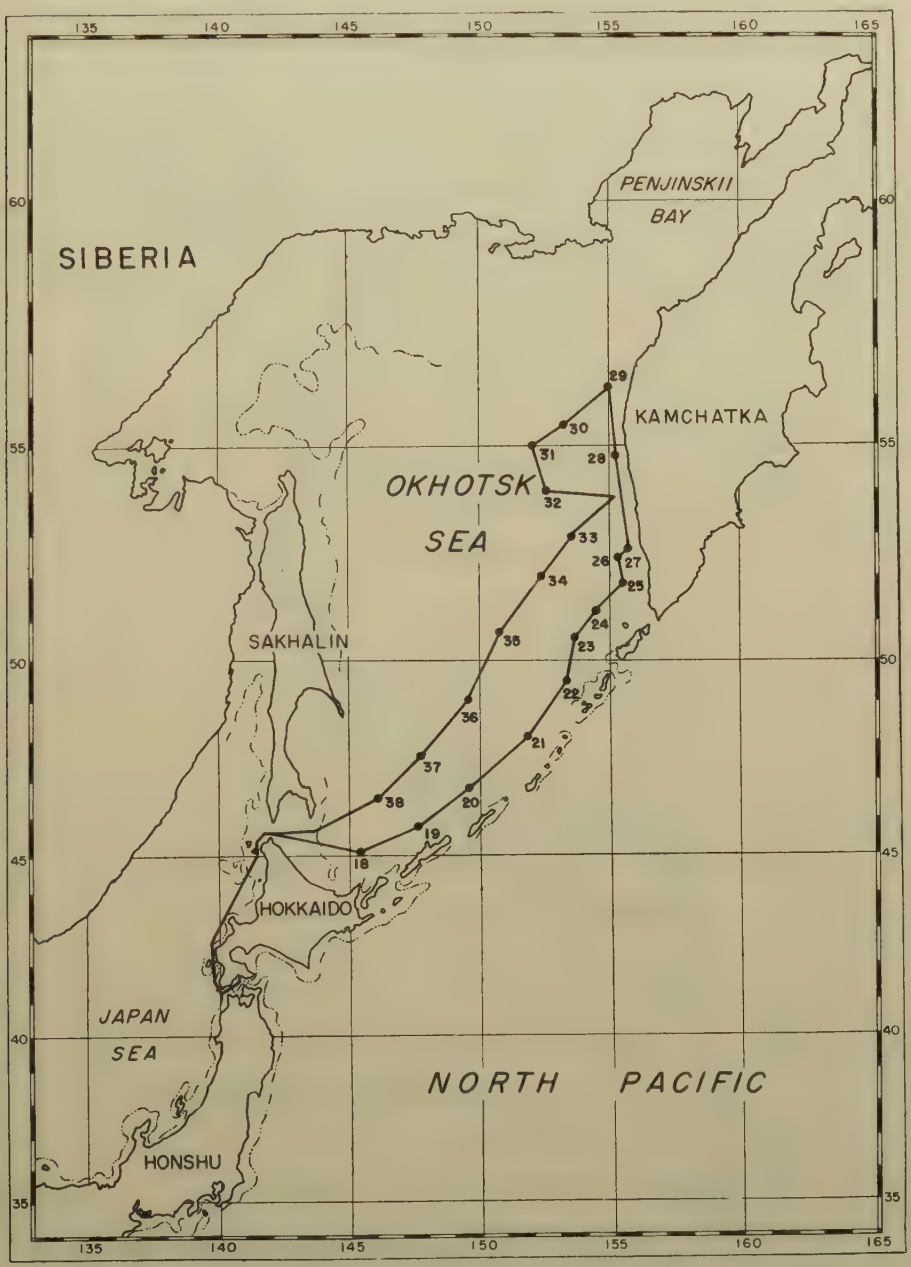



Fig. 27. Track and hydrographic stations in the "Hokusei Maru" cruise 8 (3) to the Okhotsk Sea in July 1960

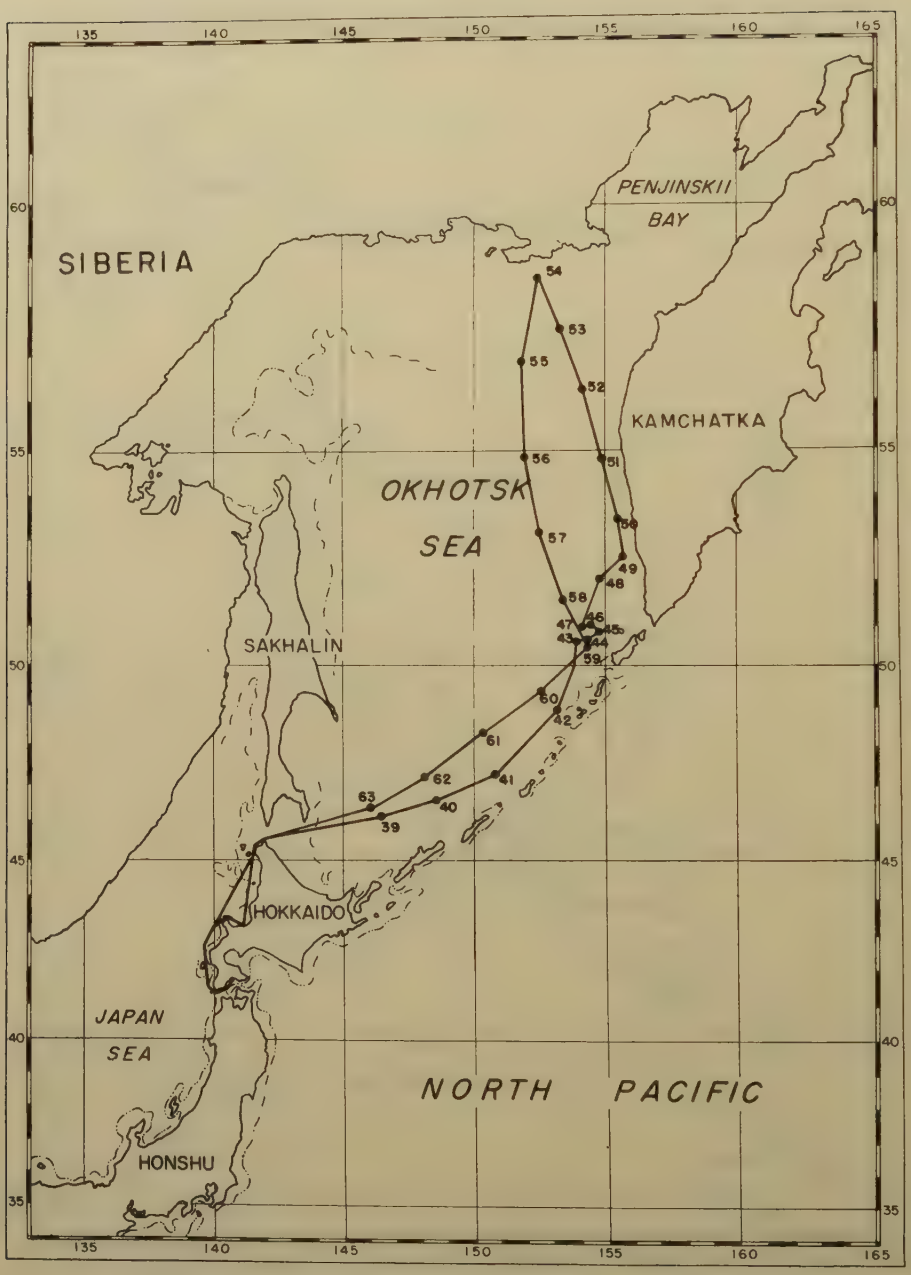



Fig. 28. Track and hydrographic stations in the "Hokusei Maru" cruise 8 (4) to the Okhotsk Sea in August 1960

## 3. Specification of Hydrographic Stations
(観測地点)

Table 34. Hydrographic stations in the "Hokusei Maru" cruise 8 (1-4) to the North Pacific and Okhotsk Sea in June-August 1960

| Cruise | No. of Station | Ship's time | | Greenwich mean time | | Position | | Max.depth of cast (m) |
|---|---|---|---|---|---|---|---|---|
| | | Date | Hour | Date | Hour | Latitude | Longitude | |
| 8 (1) | Ho 1 | June 6 | 1835~2040 | June 6 | 0935~1140 | 42°58′ N | 145°59′ E | 260 |
| | Ho 2 | 〃 7 | 2145~2309 | 〃 7 | 1245~1409 | 44°00′ N | 148°00′ E | 250 |
| | Ho 3 | 〃 8 | 1902~2003 | 〃 8 | 1002~1103 | 44°52′ N | 149°45′ E | 797 |
| | Ho 4 | 〃 9 | 1840~1925 | 〃 9 | 0940~1025 | 45°45′ N | 151°18′ E | 994 |
| | Ho 5 | 〃 10 | 1540~1625 | 〃 10 | 0640~0725 | 47°08′ N | 150°38′ E | 898 |
| | Ho 6 | 〃 11 | 1432~1525 | 〃 11 | 0532~0625 | 46°09′ N | 149°05′ E | 994 |
| | Ho 7 | 〃 12 | 1835~2004 | 〃 12 | 0935~1104 | 45°21′ N | 146°48′ E | 937 |
| | Ho 8 | 〃 13 | 1600~1645 | 〃 13 | 0700~0745 | 45°10′ N | 144°26′ E | 400 |
| 8 (2) | Ho 9 | 〃 23 | 0610~0650 | 〃 22 | 2110~2150 | 43°30′ N | 147°23′ E | 770 |
| | Ho 10 | 〃 24 | 0603~0705 | 〃 23 | 2103~2205 | 45°42′ N | 151°12′ E | 397 |
| | Ho 11 | 〃 25 | 0605~0652 | 〃 24 | 2105~2152 | 47°04′ N | 153°14′ E | 983 |
| | Ho 12 | 〃 25 | 2008~2036 | 〃 25 | 1108~1136 | 48°17′ N | 154°48′ E | 137 |
| | Ho 13 | 〃 26 | 1922~1950 | 〃 26 | 1020~1050 | 49°12′ N | 155°33′ E | 194 |
| | Ho 14 | 〃 27 | 1618~1650 | 〃 27 | 0718~0750 | 50°30′ N | 154°00′ E | 784 |
| | Ho 15 | 〃 28 | 1855~1950 | 〃 28 | 0955~1050 | 48°59′ N | 152°46′ E | 584 |
| | Ho 16 | 〃 29 | 1610~1700 | 〃 29 | 0710~0800 | 47°28′ N | 151°20′ E | 296 |
| | Ho 17 | 〃 30 | 0600~0710 | 〃 29 | 2100~2210 | 45°41′ N | 150°50′ E | 449 |
| 8 (3) | Ho 18 | July 11 | 1900~2000 | July 11 | 1000~1100 | 45°05′ N | 145°25′ E | 988 |
| | Ho 19 | 〃 12 | 0630~0730 | 〃 11 | 2130~2230 | 45°47′ N | 147°34′ E | 868 |
| | Ho 20 | 〃 12 | 1930~2030 | 〃 12 | 1030~1130 | 46°48′ N | 149°45′ E | 838 |
| | Ho 21 | 〃 13 | 1910~2010 | 〃 13 | 1010~1110 | 48°07′ N | 151°42′ E | 956 |
| | Ho 22 | 〃 14 | 1830~1930 | 〃 14 | 0930~1030 | 49°37′ N | 153°11′ E | 295 |
| | Ho 23 | 〃 15 | 1600~1700 | 〃 15 | 0700~0800 | 50°30′ N | 153°32′ E | 598 |
| | Ho 24 | 〃 16 | 1600~1700 | 〃 16 | 0700~0800 | 51°18′ N | 154°24′ E | 563 |
| | Ho 25 | 〃 17 | 1600~1700 | 〃 17 | 0700~0800 | 51°53′ N | 155°32′ E | 271 |

Table 34. (Continued)

| Cruise | No. of Station | Ship's time | | Greenwich mean time | | Position | | Max.depth of cast (m) |
|---|---|---|---|---|---|---|---|---|
| | | Date | Hour | Date | Hour | Latitude | Longitude | |
| | Ho 26 | July 19 | 1800～1830 | July 19 | 0900～0930 | 52°32′ N | 155°18′ E | 75 |
| | Ho 27 | 〃 20 | 1800～1820 | 〃 20 | 0900～0920 | 52°37′ N | 155°36′ E | 50 |
| | Ho 28 | 〃 21 | 1920～1940 | 〃 21 | 1020～1040 | 54°50′ N | 155°08′ E | 50 |
| | Ho 29 | 〃 22 | 2130～2200 | 〃 22 | 1230～1300 | 56°11′ N | 155°03′ E | 69 |
| | Ho 30 | 〃 23 | 0600～0630 | 〃 22 | 2100～2130 | 55°24′ N | 153°08′ E | 466 |
| | Ho 31 | 〃 23 | 1330～1400 | 〃 23 | 0430～0500 | 55°00′ N | 152°00′ E | 250 |
| 8 (3) | Ho 32 | 〃 23 | 2000～2040 | 〃 23 | 1100～1140 | 54°08′ N | 152°42′ E | 420 |
| | Ho 33 | 〃 24 | 2000～2050 | 〃 24 | 1100～1150 | 53°05′ N | 153°30′ E | 485 |
| | Ho 34 | 〃 25 | 0600～0700 | 〃 24 | 2100～2200 | 52°08′ N | 152°14′ E | 185 |
| | Ho 35 | 〃 25 | 1800～1840 | 〃 25 | 0900～0940 | 50°39′ N | 150°52′ E | 150 |
| | Ho 36 | 〃 26 | 0600～0650 | 〃 25 | 2100～2150 | 49°08′ N | 149°30′ E | 585 |
| | Ho 37 | 〃 26 | 1800～1850 | 〃 26 | 0900～0950 | 47°48′ N | 147°46′ E | 516 |
| | Ho 38 | 〃 27 | 0600～0700 | 〃 26 | 2100～2200 | 46°31′ N | 146°06′ E | 575 |
| | Ho 39 | Aug. 6 | 1800～1850 | Aug. 6 | 0900～0950 | 46°17′ N | 146°11′ E | 978 |
| | Ho 40 | 〃 7 | 0600～0650 | 〃 6 | 2100～2150 | 46°42′ N | 148°30′ E | 183 |
| | Ho 41 | 〃 7 | 1810～1855 | 〃 7 | 0910～0955 | 47°18′ N | 150°41′ E | 916 |
| | Ho 42 | 〃 8 | 1850～1920 | 〃 8 | 0950～1020 | 48°58′ N | 152°47′ E | 966 |
| | Ho 43 | 〃 10 | 0600～0655 | 〃 9 | 2100～2155 | 50°38′ N | 153°54′ E | 573 |
| | Ho 44 | 〃 10 | 0905～0920 | 〃 10 | 0005～0020 | 50°38′ N | 154°23′ E | 100 |
| | Ho 45 | 〃 10 | 1220～1235 | 〃 10 | 0320～0335 | 50°47′ N | 154°54′ E | 94 |
| | Ho 46 | 〃 10 | 1530～1550 | 〃 10 | 0630～0650 | 51°00′ N | 153°30′ E | 91 |
| 8 (4) | Ho 47 | 〃 11 | 2340～2400 | 〃 11 | 1440～1500 | 50°55′ N | 154°03′ E | 561 |
| | Ho 48 | 〃 12 | 1600～1630 | 〃 12 | 0700～0730 | 52°05′ N | 154°55′ E | 280 |
| | Ho 49 | 〃 13 | 1935～1950 | 〃 13 | 1035～1050 | 52°36′ N | 155°43′ E | 49 |
| | Ho 50 | 〃 14 | 2105～2130 | 〃 14 | 1205～1230 | 53°33′ N | 155°23′ E | 49 |
| | Ho 51 | 〃 15 | 0900～0920 | 〃 15 | 0000～0020 | 54°52′ N | 154°57′ E | 75 |
| | Ho 52 | 〃 15 | 1900～1930 | 〃 15 | 1000～1030 | 56°10′ N | 154°07′ E | 595 |
| | Ho 53 | 〃 16 | 0605～0650 | 〃 15 | 2105～2150 | 57°33′ N | 153°11′ E | 294 |
| | Ho 54 | 〃 16 | 1650～1710 | 〃 16 | 0750～0810 | 58°33′ N | 152°19′ E | 98 |

Table 34. (Continued)

| Cruise | No. of Station | Ship's time | | Greenwich mean time | | Position | | Max.depth of cast (m) |
|---|---|---|---|---|---|---|---|---|
| | | Date | Hour | Date | Hour | Latitude | Longitude | |
| | Ho 55 | Aug. 17 | 1800～1830 | Aug. 17 | 0900～0930 | 56°51′ N | 151°55′ E | 329 |
| | Ho 56 | 〃 18 | 0630～0655 | 〃 17 | 2130～2155 | 54°56′ N | 151°55′ E | 196 |
| | Ho 57 | 〃 18 | 1800～1848 | 〃 18 | 0900～0948 | 53°13′ N | 152°19′ E | 595 |
| | Ho 58 | 〃 19 | 0630～0708 | 〃 18 | 2130～2208 | 51°34′ N | 153°18′ E | 558 |
| 8 (4) | Ho 59 | 〃 19 | 1807～1850 | 〃 19 | 0907～0950 | 50°25′ N | 154°25′ E | 593 |
| | Ho 60 | 〃 20 | 1830～1925 | 〃 20 | 0930～1025 | 49°24′ N | 152°15′ E | 565 |
| | Ho 61 | 〃 21 | 0630～0725 | 〃 20 | 2130～2225 | 48°28′ N | 150°12′ E | 509 |
| | Ho 62 | 〃 21 | 1830～1915 | 〃 21 | 0930～1015 | 47°17′ N | 148°06′ E | 997 |
| | Ho 63 | 〃 22 | 0630～0710 | 〃 21 | 2130～2210 | 46°25′ N | 146°00′ E | 766 |

## 4. Items of Observations and Procedure at Sea
(調査項目及海上作業)

Meteorological observations: (気象観測)

Every three-hour interval, covering the whole course. Data are not presented here in order to save the printing cost; they will gladly be supplied by direct communications upon request.

Hydrographic cast: (海洋観測)

At 63 stations throughout four cruises, 8-(1), 8-(2), 8-(3), 8-(4), covering depths from the surface to about 1000 meter depth in maximum.

Analyses of water samples: (試水分析)

Chlorinity was estimated by titration method after returning from the cruise.

Dissolved oxygen, silicate and phosphate were measured aboard, at 21 hydrographic stations on cruise 8-(4), covering the depths from the surface to about 300 m. Nitrite was measured at one station on cruise 8-(4).

Sampling of the surface water for measurement of radio-activity: (放射能測定用表面水採水)

Five litres of the surface water were sampled at 21 stations on cruise 8-(3). Analysis is not yet finished.

Plankton sampling: (プランクトン採集)

Vertical hauls with a fine mesh net, 30 cm × 150 cm, XX 13, from approximately 100 meter depth, once at each hydrographic station.

Vertical hauls with a NORPAC standard net, 45 cm × 180 cm, GG 54, from approximately 150 meter depth, once at each hydrographic station.

Horizontal tows with a larva net, 130 cm × 450 cm, stramin, through the surface layer for ten

minutes at low speed at hydrographic stations and other stations.

From approximately 150 meter depth, once at each hydrographic station.

Fish larva sampling: (稚魚採集)

From the mixed plankton samples collected with a 130 cm larva net.

Sampling of plankton for analysis of faty constituents: (油脂成分分析用プランクトン採集)

Samples were collected with a 130 cm larva net by making surface horizontal tow for 30-60 minutes at 10 stations where plankton of comparatively monotonous composition occurred in abundance. Samples were brought back to the University by storing them in cans added with acetone as much as the size of samples. Analysis of samples is being made by M. Yamada in the University.

Salmon gill-net set: (鮭鱒流網)

Twenty-five operations were carried out at different stations. Specimens were used to the measurement of biological characters, observations on maturity, sampling of scales for later examination.

## 5. Data on Temperature, Salinity and Computed Dynamic Depth
(温度，塩分記録及ダイナミックデプス計算値記録)

Shallow casts in upper 150 meters were carried out with a manual winch and deep casts below 150 meters with an electric winch. In the shallow cast each Nansen bottle carried two protected reversing thermometers. In the deep cast each bottle carried an unprotected reversing thermometer with two protected thermometers. Differing from the method employed in the "Oshoro Maru" cruise (ref. to pp. 62-63), Nansen bottles were attached to the wire cable at the definite position, i.e., 10, 20, 30, 50, 75, 100, 150, 200, 300, 400, 500, 600, 800 and 1000 m, by length of wire cable, regardless to the inclination of wire cable.

The depths of observations in the shallow cast (at 150 m or less) were calculated from measured wire angle; in the deep cast the depths were determined from wire angle and curves of wire length minus thermometric depth versus wire length.

The interpolated values of temperature and chlorinity were read from temperature depth and chlorinity depth curves respectively.

Double titration for chlorinity determination was carried out at the Oceanographic Laboratory of the University.

Calculation of depths, interpolation of data, and computation of dynamic depth were made by Y. Akiba.

Table 35. Data on temperature, salinity and computed dynamic depth in the "Hokusei Maru" cruise 8 (1–4) to the North Pacific and Okhotsk Sea in June–August 1960

**Station Ho 1**

Date June 6 Time 1835～2040 (S.M.T.) Latitude 42°58′N Longitude 145°59′E
Wind NE 3 Weather c Air Temp. 6.3°C Sea NE 2 Swell E 2 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.6 | 18.46 | 33.35 | 0 | 8.6 | 18.46 | 33.35 | 25.91 | 211 | 0 |
| 10 | 22 | 9 | 8.61 | 18.46 | 33.35 | 10 | 8.60 | 18.46 | 33.35 | 25.91 | 211 | 0.021 |
| 20 | 〃 | 19 | 8.55 | 18.46 | 33.35 | 20 | 8.50 | 18.46 | 33.35 | 25.92 | 210 | 0.042 |
| 30 | 17 | 29 | 7.85 | 18.46 | 33.35 | 30 | 7.64 | 18.46 | 33.35 | 26.05 | 197 | 0.062 |
| 50 | 〃 | 48 | 3.90 | (18.49) | (33.40) | 50 | 3.65 | 18.49 | 33.40 | 26.57 | 148 | 0.097 |
| 75 | 22 | 70 | 2.80 | 18.53 | 33.48 | 75 | 2.67 | 18.54 | 33.50 | 26.73 | 133 | 0.132 |
| 100 | 〃 | 93 | 2.32 | (18.55) | (33.51) | 100 | 2.04 | 18.56 | 33.53 | 26.81 | 125 | 0.164 |
| 150 | 〃 | 139 | 1.45 | 18.58 | 33.57 | 150 | 1.37 | 18.58 | 33.57 | 26.89 | 117 | 0.225 |
| 200 | 25 | 185 | 1.45 | 18.60 | 33.60 | 200 | 1.55 | 18.60 | 33.60 | 26.90 | 117 | 0.284 |
| 300 | 〃 | 260 | 2.03 | 18.62 | 33.64 | 300 | 2.50 | 18.62 | 33.64 | 26.87 | 119 | 0.403 |

**Station Ho 2**

Date June 7 Time 2145～2309 (S.M.T.) Latitude 44°00′N Longitude 148°00′E
Wind NE 3 Weather r Air Temp. 2.8°C Sea NE 2 Swell SE 2 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.4 | 18.29 | 33.04 | 0 | 3.4 | 18.29 | 33.04 | 26.31 | 173 | 0 |
| 10 | 14 | 10 | 3.40 | 18.29 | 33.04 | 10 | 3.40 | 18.29 | 33.04 | 26.31 | 173 | 0.017 |
| 20 | 9 | 20 | 2.11 | 18.29 | 33.04 | 20 | 2.11 | 18.29 | 33.04 | 26.42 | 162 | 0.034 |
| 30 | 〃 | 30 | 1.23 | 18.29 | 33.04 | 30 | 1.23 | 18.29 | 33.04 | 26.49 | 155 | 0.050 |
| 50 | 〃 | 49 | 0.88 | 18.30 | 33.06 | 50 | 0.87 | 18.30 | 33.06 | 26.52 | 153 | 0.081 |
| 75 | 14 | 73 | 0.58 | 18.34 | 33.13 | 75 | 0.58 | 18.34 | 33.13 | 26.60 | 145 | 0.118 |
| 100 | 〃 | 97 | 0.51 | 18.37 | 33.19 | 100 | 0.52 | 18.37 | 33.19 | 26.64 | 141 | 0.154 |
| 150 | 36 | 121 | 0.52 | 18.39 | 33.22 | 150 | 0.53 | 18.43 | 33.30 | 26.73 | 133 | 0.223 |
| 200 | 〃 | 162 | 0.55 | 18.43 | 33.30 | 200 | 0.70 | 18.48 | 33.39 | 26.79 | 127 | 0.289 |
| 300 | 〃 | 250 | 0.99 | 18.43 | 33.30 | | | | | | | |

Table 35. (Continued)

**Station Ho 3**

Date June 8 Time 1902～2003 (S.M.T.) Latitude 44°52′N Longitude 149°45′E
Wind NNW 2 Weather o Air Temp. 2.8°C Sea × Swell × Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.7 | 18.40 | 33.24 | 0 | 3.7 | 18.40 | 33.24 | 26.44 | 160 | 0 |
| 10 | 2 | 10 | 3.78 | 18.40 | 33.24 | 10 | 3.78 | 18.40 | 33.24 | 26.43 | 161 | 0.016 |
| 20 | 〃 | 20 | 3.39 | 18.39 | 33.22 | 20 | 3.39 | 18.39 | 33.22 | 26.46 | 158 | 0.032 |
| 30 | 〃 | 30 | 3.34 | 18.39 | 33.22 | 30 | 3.34 | 18.39 | 33.22 | 26.47 | 157 | 0.048 |
| 50 | 4 | 50 | 3.32 | (18.40) | (33.24) | 50 | 3.32 | 18.40 | 33.24 | 26.48 | 156 | 0.079 |
| 75 | 〃 | 75 | 3.11 | 18.42 | 33.28 | 75 | 3.11 | 18.42 | 33.28 | 26.52 | 153 | 0.118 |
| 100 | 〃 | 100 | 1.34 | 18.46 | 33.35 | 100 | 1.34 | 18.46 | 33.35 | 26.72 | 134 | 0.154 |
| 150 | 〃 | 150 | 1.27 | 18.51 | 33.44 | 150 | 1.27 | 18.51 | 33.44 | 26.80 | 126 | 0.219 |
| 200 | 4 | 200 | 2.42 | 18.67 | 33.73 | 200 | 2.42 | 18.67 | 33.73 | 26.94 | 113 | 0.279 |
| 300 | 〃 | 300 | 2.93 | 18.89 | 34.13 | 300 | 2.93 | 18.89 | 34.13 | 27.22 | 86 | 0.380 |
| 400 | 〃 | 400 | 3.01 | 19.00 | 34.33 | 400 | 3.01 | 19.00 | 34.33 | 27.36 | 73 | 0.462 |
| 500 | 〃 | 500 | 3.02 | 19.04 | 34.40 | 500 | 3.02 | 19.04 | 34.40 | 27.42 | 67 | 0.536 |
| 600 | 4 | 598 | 2.95 | 19.06 | 34.42 | 600 | 2.95 | 19.06 | 34.42 | 27.46 | 63 | 0.605 |
| 800 | 〃 | 797 | 2.76 | 19.09 | 34.49 | 800 | 2.76 | 19.08 | 34.47 | 27.50 | 60 | 0.737 |

**Station Ho 4**

Date June 9 Time 1840～1925 (S.M.T.) Latitude 45°45′N Longitude 151°18′E
Wind SE 1 Weather o Air Temp. 3.5°C Sea NE 2 Swell E 1 Col. × Tr. 5.5m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.5 | 18.43 | 33.30 | 0 | 4.5 | 18.43 | 33.30 | 26.40 | 164 | 0 |
| 10 | 0 | 10 | 3.91 | 18.42 | 33.28 | 10 | 3.91 | 18.42 | 33.28 | 26.44 | 160 | 0.016 |
| 20 | 〃 | 20 | 3.31 | (18.43) | (33.30) | 20 | 3.31 | 18.43 | 33.30 | 26.52 | 153 | 0.032 |
| 30 | 〃 | 30 | 2.20 | (18.43) | (33.30) | 30 | 2.20 | 18.43 | 33.30 | 26.61 | 144 | 0.047 |
| 50 | 0 | 50 | 1.11 | (18.43) | (33.30) | 50 | 1.11 | 18.43 | 33.30 | 26.70 | 135 | 0.074 |
| 75 | 〃 | 75 | 1.08 | 18.44 | 33.31 | 75 | 1.08 | 18.44 | 33.31 | 26.71 | 135 | 0.104 |
| 100 | 〃 | 100 | 1.11 | 18.51 | 33.44 | 100 | 1.11 | 18.51 | 33.44 | 26.80 | 126 | 0.137 |
| 150 | 4 | 150 | 1.15 | 18.54 | 33.50 | 150 | 1.15 | 18.54 | 33.50 | 29.84 | 122 | 0.199 |
| 200 | 〃 | 200 | 1.22 | 18.59 | 33.59 | 200 | 1.22 | 18.59 | 33.59 | 26.91 | 116 | 0.259 |
| 300 | 〃 | 300 | 1.44 | 18.71 | 33.80 | 300 | 1.44 | 18.71 | 33.80 | 27.07 | 100 | 0.368 |
| 400 | 〃 | 398 | 2.06 | 18.83 | 34.02 | 400 | 2.07 | 18.83 | 34.02 | 27.20 | 88 | 0.463 |
| 500 | 11 | 496 | 2.74 | 18.89 | 34.09 | 500 | 2.75 | 18.89 | 34.09 | 27.23 | 85 | 0.551 |
| 600 | 〃 | 596 | 3.00 | 18.95 | 34.24 | 600 | 3.00 | 18.95 | 34.24 | 27.30 | 79 | 0.636 |
| 800 | 〃 | 795 | 2.95 | 19.06 | 34.43 | 800 | 2.95 | 19.06 | 34.43 | 27.46 | 63 | 0.787 |
| 1000 | 〃 | 994 | 2.57 | 19.10 | 34.51 | | | | | | | |

Table 35. (Continued)

**Station Ho 5**

Date June 10 Time 1540~1625 (S.M.T.) Latitude 47°08′N Longitude 150°38′E
Wind SE 3 Weather o Air Temp. 2.5°C Sea NE 3 Swell NE 2 Col. 5 Tr. 8m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.2 | 18.27 | 33.01 | 0 | 3.2 | 18.27 | 33.01 | 26.30 | 173 | 0 |
| 10 | 9 | 10 | 2.95 | 18.32 | 33.10 | 10 | 2.95 | 18.32 | 33.10 | 26.40 | 164 | 0.017 |
| 20 | 〃 | 20 | 2.69 | 18.34 | 33.13 | 20 | 2.69 | 18.34 | 33.13 | 26.45 | 159 | 0.033 |
| 30 | 〃 | 30 | 2.54 | 18.35 | 33.15 | 30 | 2.54 | 18.36 | 33.17 | 26.49 | 155 | 0.049 |
| 50 | 18 | 48 | 1.62 | 18.37 | 33.19 | 50 | 1.45 | 18.37 | 33.19 | 26.59 | 146 | 0.079 |
| 75 | 〃 | 72 | 0.47 | (18.39) | (33.22) | 75 | -0.10 | 18.39 | 33.22 | 26.70 | 135 | 0.114 |
| 100 | 〃 | 95 | -0.17 | 18.40 | 33.24 | 100 | -0.18 | 18.40 | 33.24 | 26.72 | 134 | 0.148 |
| 150 | 26 | 135 | (0.14) | (18.42) | (33.28) | 150 | 0.36 | 18.43 | 33.30 | 26.73 | 133 | 0.215 |
| 200 | 〃 | 180 | 0.67 | 18.45 | 33.33 | 200 | 0.75 | 18.46 | 33.35 | 26.76 | 130 | 0.281 |
| 300 | 〃 | 267 | (0.94) | 18.50 | 33.42 | 300 | 1.02 | 18.52 | 33.46 | 26.82 | 124 | 0.408 |
| 400 | 〃 | 364 | 1.08 | 18.57 | 33.55 | 400 | 1.20 | 18.59 | 33.59 | 26.98 | 109 | 0.525 |
| 500 | 38 | 429 | (1.26) | 18.64 | 33.68 | 500 | 1.40 | 18.66 | 33.71 | 27.00 | 107 | 0.634 |
| 600 | 〃 | — | — | — | — | 600 | 1.59 | 18.73 | 33.84 | 27.09 | 98 | 0.738 |
| 800 | 〃 | 707 | 1.76 | 18.81 | 33.98 | 800 | 1.90 | 18.86 | 34.07 | 27.26 | 82 | 0.923 |
| 1000 | 〃 | 898 | 2.10 | (18.92) | (34.18) | | | | | | | |

**Station Ho 6**

Date June 11 Time 1432~1525 (S.M.T.) Latitude 46°09′N Longitude 149°05′E
Wind E 3 Weather c Air Temp. 5.0°C Sea NE 3 Swell ENE 2 Col. 4 Tr. 7m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.4 | 18.07 | 32.65 | 0 | 3.4 | 18.07 | 32.65 | 26.00 | 202 | 0 |
| 10 | 6 | 10 | 2.97 | 18.06 | 32.63 | 10 | 2.97 | 18.06 | 32.63 | 26.01 | 201 | 0.020 |
| 20 | 〃 | 20 | 2.48 | 18.06 | 32.63 | 20 | 2.48 | 18.06 | 32.63 | 26.05 | 197 | 0.040 |
| 30 | 〃 | 30 | 1.70 | 18.20 | 32.88 | 30 | 1.70 | 18.20 | 32.88 | 26.32 | 172 | 0.058 |
| 50 | 8 | 50 | 1.11 | 18.30 | 33.06 | 50 | 1.11 | 18.30 | 33.06 | 26.51 | 154 | 0.091 |
| 75 | 〃 | 75 | 0.28 | 18.37 | 33.19 | 75 | 0.28 | 18.37 | 33.19 | 26.66 | 139 | 0.128 |
| 100 | 〃 | 100 | 0.20 | 18.42 | 33.28 | 100 | 0.20 | 18.40 | 33.24 | 26.70 | 135 | 0.162 |
| 150 | 18 | 143 | 0.34 | 18.42 | 33.28 | 150 | 0.38 | 18.43 | 33.30 | 26.73 | 133 | 0.229 |
| 200 | 〃 | 190 | 0.52 | 18.52 | 33.46 | 200 | 0.53 | 18.52 | 33.46 | 26.86 | 120 | 0.292 |
| 300 | 〃 | 285 | 0.59 | 18.57 | 33.55 | 300 | 0.65 | 18.58 | 33.57 | 26.93 | 114 | 0.409 |
| 400 | 〃 | 380 | 0.75 | 18.60 | 33.60 | 400 | 0.76 | 18.60 | 33.60 | 26.95 | 112 | 0.522 |
| 500 | 24 | 491 | 0.89 | 18.65 | 33.69 | 500 | 0.91 | 18.66 | 33.71 | 27.02 | 105 | 0.631 |
| 600 | 〃 | 590 | 1.19 | 18.72 | 33.82 | 600 | 1.19 | 18.73 | 33.84 | 27.11 | 97 | 0.733 |
| 800 | 〃 | — | — | — | — | 800 | 1.63 | 18.88 | 34.11 | 27.30 | 79 | 0.932 |
| 1000 | 〃 | 994 | 2.08 | 19.03 | 34.38 | | | | | | | |

Table 35. (Continued)

**Station Ho 7**

Date June 12 Time 1835～2004 (S.M.T.) Latitude 45°21′N Longitude 146°48′E
Wind SW 3 Weather b Air Temp. 3.8°C Sea SSE 4 Swell SSE 3 Col. 4 Tr. 6m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.1 | 17.74 | 32.05 | 0 | 3.1 | 17.74 | 32.05 | 25.55 | 245 | 0 |
| 10 | 12 | 10 | 3.16 | 17.68 | 31.94 | 10 | 3.16 | 17.68 | 31.94 | 25.47 | 252 | 0.025 |
| 20 | 〃 | 20 | 2.66 | 17.71 | 32.00 | 20 | 2.66 | 17.71 | 32.00 | 25.54 | 246 | 0.050 |
| 30 | 〃 | 29 | 2.23 | 17.73 | 32.03 | 30 | 2.10 | 17.73 | 32.03 | 25.62 | 238 | 0.074 |
| 50 | 20 | 47 | 0.15 | 17.82 | 32.20 | 50 | −0.08 | 17.84 | 32.23 | 25.90 | 211 | 0.119 |
| 75 | 〃 | 71 | −1.19 | 18.03 | 32.57 | 75 | −1.20 | 18.04 | 32.59 | 26.22 | 181 | 0.168 |
| 100 | 〃 | 94 | −1.23 | 18.07 | 32.65 | 100 | −1.23 | 18.10 | 32.70 | 26.31 | 173 | 0.212 |
| 150 | 26 | 146 | −1.24 | 18.20 | 32.88 | 150 | −1.15 | 18.20 | 32.88 | 26.47 | 157 | 0.294 |
| 200 | 〃 | 195 | 0.03 | 18.29 | 33.04 | 200 | 0.06 | 18.30 | 33.06 | 26.57 | 148 | 0.370 |
| 300 | 〃 | 292 | 0.61 | 18.45 | 33.33 | 300 | 0.61 | 18.45 | 33.33 | 26.75 | 131 | 0.509 |
| 400 | 〃 | 389 | 0.58 | 18.56 | 33.53 | 400 | 0.60 | 18.56 | 33.53 | 26.91 | 116 | 0.633 |
| 500 | 83 | 470 | 0.78 | 18.61 | 33.62 | 500 | 1.00 | 18.64 | 33.68 | 27.00 | 107 | 0.745 |
| 600 | 〃 | 562 | 1.18 | 18.69 | 33.77 | 600 | 1.42 | 18.72 | 33.82 | 27.09 | 98 | 0.848 |
| 800 | 〃 | 750 | 1.91 | 18.86 | 34.07 | 800 | 1.99 | 18.86 | 34.07 | 27.25 | 83 | 1.033 |
| 1000 | 〃 | 937 | 2.18 | 18.95 | 34.24 | | | | | | | |

**Station Ho 8**

Date June 13 Time 1600～1645 (S.M.T.) Latitude 45°10′N Longitude 144°26′E
Wind SSW 1 Weather b Air Temp. 8.1°C Sea ESE 1 Swell ESE 1 Col. 5 Tr. 12m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.0 | 18.01 | 32.54 | 0 | 6.0 | 18.01 | 32.54 | 25.63 | 237 | 0 |
| 10 | 0 | 10 | 4.04 | 17.92 | 32.38 | 10 | 4.04 | 17.92 | 32.38 | 25.72 | 229 | 0.023 |
| 20 | 〃 | 20 | 3.58 | 17.92 | 32.38 | 20 | 3.58 | 17.92 | 32.38 | 25.76 | 225 | 0.046 |
| 30 | 〃 | 30 | 2.60 | 17.95 | 32.43 | 30 | 2.60 | 17.95 | 32.43 | 25.93 | 209 | 0.068 |
| 50 | 3 | 50 | −0.48 | 18.07 | 32.65 | 50 | −0.48 | 18.07 | 32.65 | 26.25 | 178 | 0.107 |
| 75 | 〃 | 75 | −1.37 | 18.28 | 33.03 | 75 | −1.37 | 18.28 | 33.03 | 26.59 | 146 | 0.148 |
| 100 | 〃 | 100 | −1.60 | 18.30 | 33.06 | 100 | −1.60 | 18.30 | 33.06 | 26.62 | 143 | 0.184 |
| 150 | 6 | 150 | −1.52 | 18.35 | 33.15 | 150 | −1.52 | 18.35 | 33.15 | 26.70 | 135 | 0.253 |
| 200 | 〃 | 200 | −0.27 | 18.40 | 33.24 | 200 | −0.27 | 18.40 | 33.24 | 26.72 | 134 | 0.320 |
| 300 | 〃 | 300 | 0.19 | 18.46 | 33.35 | 300 | 0.19 | 18.46 | 33.35 | 26.79 | 127 | 0.450 |
| 400 | 〃 | 400 | 0.32 | 18.49 | 33.40 | 400 | 0.32 | 18.49 | 33.40 | 26.83 | 123 | 0.574 |

Table 35. (Continued)

**Station Ho 9**

Date June 23 Time 0610～0650 (S.M.T.) Latitude 43°30′N Longitude 147°23′E
Wind N 2 Weather c Air Temp. 5.0°C Sea NNE 3 Swell NE 3 Col. 7 Tr. 4m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.0 | 18.19 | 32.86 | 0 | 4.0 | 18.19 | 32.86 | 26.11 | 192 | 0 |
| 10 | 12 | 10 | 3.81 | 18.20 | 32.88 | 10 | 3.81 | 18.20 | 32.88 | 26.14 | 189 | 0.019 |
| 20 | 〃 | 20 | 3.32 | 18.25 | 32.97 | 20 | 3.32 | 18.25 | 32.97 | 26.26 | 177 | 0.037 |
| 30 | 〃 | 29 | 2.99 | (18.27) | (33.01) | 30 | 2.96 | 18.27 | 33.01 | 26.32 | 172 | 0.054 |
| 50 | 28 | 44 | 2.38 | 18.30 | 33.06 | 50 | 2.09 | 18.30 | 33.06 | 26.44 | 160 | 0.087 |
| 75 | 〃 | 66 | 1.53 | 18.32 | 33.10 | 75 | 1.46 | 18.34 | 33.13 | 26.54 | 151 | 0.126 |
| 100 | 〃 | 87 | 1.34 | 18.35 | 33.15 | 100 | 1.10 | 18.37 | 33.19 | 26.61 | 144 | 0.163 |
| 150 | 36 | 121 | 0.90 | 18.45 | 33.33 | 150 | 0.86 | 18.42 | 33.28 | 26.70 | 135 | 0.233 |
| 200 | 〃 | 162 | 0.75 | 18.48 | 33.39 | 200 | 0.88 | 18.47 | 33.37 | 26.77 | 129 | 0.299 |
| 300 | 〃 | 251 | 1.06 | 18.49 | 33.40 | 300 | 1.33 | 18.55 | 33.51 | 26.85 | 121 | 0.424 |
| 400 | 〃 | 338 | 1.46 | (18.58) | (33.57) | 400 | 1.74 | 18.63 | 33.66 | 26.93 | 114 | 0.542 |
| 500 | 45 | 348 | 1.59 | 18.59 | 33.59 | 500 | 2.10 | 18.71 | 33.80 | 27.02 | 105 | 0.653 |
| 600 | 〃 | 421 | 1.84 | 18.65 | 33.69 | 600 | 2.41 | 18.79 | 33.95 | 27.11 | 97 | 0.757 |
| 800 | 〃 | 590 | 2.38 | 18.82 | 34.00 | | | | | | | |
| 1000 | 〃 | 770 | 2.85 | 18.91 | 34.16 | | | | | | | |

**Station Ho 10**

Date June 24 Time 0603～0705 (S.M.T.) Latitude 45°42′N Longitude 151°12′E
Wind W 4 Weather bc Air Temp. 5.0°C Sea W 4 Swell W 4 Col. 6 Tr. 7m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 3.8 | 18.28 | 33.03 | 0 | 3.8 | 18.28 | 33.03 | 26.26 | 177 | 0 |
| 10 | 24 | 9 | 3.72 | 18.25 | 32.97 | 10 | 3.73 | 18.25 | 32.97 | 26.21 | 182 | 0.018 |
| 20 | 〃 | 18 | 3.76 | 18.26 | 32.99 | 20 | 3.76 | 18.26 | 32.99 | 26.23 | 180 | 0.036 |
| 30 | 〃 | 28 | 3.34 | 18.26 | 32.99 | 30 | 3.20 | 18.27 | 33.01 | 26.30 | 173 | 0.054 |
| 50 | 38 | 39 | 1.87 | 18.31 | 33.08 | 50 | 1.40 | 18.31 | 33.08 | 26.50 | 154 | 0.087 |
| 75 | 〃 | 59 | 1.26 | 18.33 | 33.12 | 75 | 1.18 | 18.38 | 33.21 | 26.62 | 143 | 0.124 |
| 100 | 〃 | 79 | 1.07 | 18.38 | 33.21 | 100 | 1.09 | 18.43 | 33.30 | 26.70 | 135 | 0.159 |
| 150 | 50 | 96 | 1.07 | 18.42 | 33.28 | 150 | 1.60 | 18.48 | 33.39 | 26.73 | 133 | 0.226 |
| 200 | 〃 | 129 | 1.19 | 18.47 | 33.37 | 200 | 2.32 | 18.59 | 33.59 | 26.83 | 123 | 0.291 |
| 300 | 〃 | 193 | 2.28 | 18.57 | 33.55 | 300 | 2.78 | 18.71 | 33.80 | 26.97 | 110 | 0.409 |
| 400 | 〃 | — | — | — | — | 400 | 3.00 | 18.81 | 33.98 | 27.10 | 98 | 0.515 |
| 500 | 50 | 318 | 2.84 | 18.75 | 33.87 | | | | | | | |
| 600 | 〃 | 397 | 3.00 | 18.81 | 33.98 | | | | | | | |

Table 35. (Continued)

**Station Ho 11**

Date June 25 Time 0605～0652 (S.M.T.) Latitude 47°04′N Longitude 153°14′E
Wind N 2 Weather b Air Temp. 4.0°C Sea WNW 3 Swell W 3 Col. 6 Tr. 10m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 4.4 | 18.31 | 33.08 | 0 | 4.4 | 18.31 | 33.08 | 26.23 | 180 | 0 |
| 10 | 6 | 10 | 3.90 | 18.25 | 32.97 | 10 | 3.90 | 18.25 | 32.97 | 26.20 | 183 | 0.018 |
| 20 | 〃 | 20 | 3.84 | 18.26 | 32.99 | 20 | 3.84 | 18.26 | 32.99 | 26.22 | 181 | 0.036 |
| 30 | 〃 | 30 | 3.60 | 18.26 | 32.99 | 30 | 3.60 | 18.26 | 32.99 | 26.25 | 178 | 0.054 |
| 50 | 10 | 49 | 2.12 | 18.31 | 33.08 | 50 | 2.12 | 18.28 | 33.03 | 26.40 | 164 | 0.088 |
| 75 | 〃 | 74 | 1.68 | 18.31 | 33.08 | 75 | 1.50 | 18.31 | 33.08 | 26.50 | 154 | 0.128 |
| 100 | 〃 | 98 | 1.27 | 18.34 | 33.13 | 100 | 1.27 | 18.34 | 33.13 | 26.56 | 149 | 0.166 |
| 150 | 12 | 147 | 1.30 | 18.42 | 33.28 | 150 | 1.34 | 18.42 | 33.28 | 26.66 | 139 | 0.238 |
| 200 | 〃 | 196 | 2.49 | 18.55 | 33.51 | 200 | 2.51 | 18.55 | 33.51 | 26.77 | 129 | 0.306 |
| 300 | 〃 | 295 | 3.43 | 18.71 | 33.80 | 300 | 3.40 | 18.72 | 33.82 | 27.03 | 104 | 0.424 |
| 400 | 〃 | 395 | 3.22 | 18.85 | 34.05 | 400 | 3.14 | 18.85 | 34.05 | 27.14 | 94 | 0.525 |
| 500 | 12 | 490 | 3.07 | 18.91 | 34.16 | 500 | 3.07 | 18.92 | 34.18 | 27.25 | 83 | 0.616 |
| 600 | 〃 | 588 | 3.06 | 18.88 | 34.11 | 600 | 3.06 | 18.96 | 34.25 | 27.30 | 79 | 0.701 |
| 800 | 〃 | 784 | 2.95 | 19.00 | 34.33 | 800 | 2.94 | 19.00 | 34.33 | 27.38 | 71 | 0.860 |
| 1000 | 〃 | 983 | 2.69 | 19.03 | 34.38 | | | | | | | |

**Station Ho 12**

Date June 25 Time 2008～2036 (S.M.T.) Latitude 48°17′N Longitude 154°48′E
Wind NW 2 Weather b Air Temp. 4.5°C Sea NW 3 Swell NW 2 Col. 5 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 2.7 | 18.26 | 32.99 | 0 | 2.7 | 18.26 | 32.99 | 26.33 | 171 | 0 |
| 10 | 0 | 10 | 2.30 | (18.29) | (33.04) | 10 | 2.30 | 18.29 | 33.04 | 26.41 | 163 | 0.017 |
| 20 | 〃 | 20 | 2.18 | (18.31) | (33.08) | 20 | 2.18 | 18.31 | 33.08 | 26.45 | 159 | 0.033 |
| 30 | 〃 | 30 | 2.07 | 18.34 | 33.13 | 30 | 2.07 | 18.34 | 33.13 | 26.50 | 154 | 0.049 |
| 50 | 24 | 46 | 1.89 | 18.35 | 33.15 | 50 | 1.87 | 18.36 | 33.17 | 26.54 | 151 | 0.080 |
| 75 | 〃 | 69 | 1.82 | (18.39) | (33.22) | 75 | 1.85 | 18.39 | 33.22 | 26.59 | 146 | 0.117 |
| 100 | 〃 | 91 | 1.91 | 18.41 | 33.26 | 100 | 1.90 | 18.42 | 33.28 | 26.62 | 143 | 0.153 |
| 150 | 24 | 137 | 1.84 | 18.45 | 33.33 | | | | | | | |

Table 35. (Continued)

**Station Ho 13**

Date June 26 Time 1922～1950 (S.M.T.) Latitude 49°12′N Longitude 155°33′E
Wind SW 2 Weather f Air Temp. 3.0°C Sea × Swell × Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma t$ (g/L) | $\triangle$st (cl/ton) | $\triangle$D (dyn.m) |
| 0 | | 0 | 3.8 | 18.11 | 32.72 | 0 | 3.8 | 18.11 | 32.72 | 26.01 | 201 | 0 |
| 10 | 8 | 10 | 3.81 | 18.11 | 32.72 | 10 | 3.81 | 18.11 | 32.72 | 26.01 | 201 | 0.020 |
| 20 | 〃 | 20 | 3.63 | 18.11 | 32.72 | 20 | 3.63 | 18.11 | 32.72 | 26.02 | 200 | 0.040 |
| 30 | 〃 | 30 | 2.96 | 18.11 | 32.72 | 30 | 2.96 | 18.11 | 32.72 | 26.09 | 193 | 0.060 |
| 50 | 14 | 49 | 1.10 | 18.13 | 32.76 | 50 | 1.08 | 18.13 | 32.76 | 26.27 | 176 | 0.097 |
| 75 | 〃 | 73 | 0.57 | 18.28 | 33.03 | 75 | 0.58 | 18.28 | 33.03 | 26.51 | 154 | 0.138 |
| 100 | 〃 | 97 | 0.81 | 18.40 | 33.24 | 100 | 0.82 | 18.40 | 33.24 | 26.67 | 138 | 0.175 |
| 150 | 14 | 146 | 0.86 | 18.40 | 33.24 | 150 | 0.86 | 18.40 | 33.24 | 26.67 | 138 | 0.244 |
| 200 | 〃 | 194 | 1.04 | 18.42 | 33.28 | 200 | 1.06 | 18.42 | 33.28 | 26.69 | 136 | 0.313 |

**Station Ho 14**

Date June 28 Time 1618～1650 (S.M.T.) Latitude 50°30′N Longitude 154°00′E
Wind SSW 1 Weather o Air Temp. 5.0°C Sea SE 2 Swell ESE 1 Col. 5 Tr. 9m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma t$ (g/L) | $\triangle$st (cl/ton) | $\triangle$D (dyn.m) |
| 0 | | 0 | 4.6 | 18.20 | 32.88 | 0 | 4.6 | 18.20 | 32.88 | 26.06 | 196 | 0 |
| 10 | 0 | 10 | 3.79 | 18.19 | 32.86 | 10 | 3.79 | 18.19 | 32.86 | 26.13 | 190 | 0.019 |
| 20 | 〃 | 20 | 2.90 | 18.23 | 32.94 | 20 | 2.90 | 18.23 | 32.94 | 26.27 | 176 | 0.037 |
| 30 | 〃 | 30 | 2.59 | 18.21 | 32.90 | 30 | 2.59 | 18.23 | 32.94 | 26.30 | 173 | 0.054 |
| 50 | 2 | 50 | 0.68 | 18.27 | 33.01 | 50 | 0.68 | 18.27 | 33.01 | 26.49 | 155 | 0.087 |
| 75 | 〃 | 75 | 0.64 | 18.30 | 33.06 | 75 | 0.64 | 18.30 | 33.06 | 26.53 | 152 | 0.125 |
| 100 | 〃 | 100 | (0.68) | (18.34) | (33.13) | 100 | 0.68 | 18.34 | 33.13 | 26.59 | 146 | 0.162 |
| 150 | 3 | 150 | 0.73 | (18.39) | (33.22) | 150 | 0.73 | 18.39 | 33.22 | 26.66 | 139 | 0.233 |
| 200 | 〃 | 200 | 0.86 | 18.43 | 33.28 | 200 | 0.86 | 18.43 | 33.28 | 26.71 | 135 | 0.301 |
| 300 | 〃 | 295 | 1.49 | 18.49 | 33.40 | 300 | 1.49 | 18.49 | 33.40 | 26.75 | 131 | 0.434 |
| 400 | 〃 | 393 | 1.53 | 18.55 | 33.51 | 400 | 1.50 | 18.56 | 33.53 | 26.85 | 121 | 0.561 |
| 500 | 6 | 489 | 1.69 | 18.65 | 33.69 | 500 | 1.72 | 18.68 | 33.75 | 27.01 | 106 | 0.676 |
| 600 | 〃 | 586 | 2.04 | 18.79 | 33.95 | 600 | 2.04 | 18.80 | 33.96 | 27.17 | 91 | 0.776 |
| 800 | 〃 | 784 | 2.38 | 18.90 | 34.15 | | | | | | | |

Table 35. (Continued)

**Station Ho 15**

Date June 28 Time 1855～1950 (S.M.T.) Latitude 48°59′N Longitude 152°46′E
Wind S 1 Weather f Air Temp. 4.3°C Sea SE 1 Swell SE 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.8 | 18.13 | 32.76 | 0 | 4.8 | 18.13 | 32.76 | 25.94 | 208 | 0 |
| 10 | 2 | 10 | 3.83 | 18.12 | 32.74 | 10 | 3.83 | 18.12 | 32.74 | 26.02 | 200 | 0.020 |
| 20 | 〃 | 20 | 2.79 | 18.18 | 32.85 | 20 | 2.79 | 18.18 | 32.85 | 26.20 | 183 | 0.039 |
| 30 | 〃 | 30 | 1.97 | 18.25 | 32.97 | 30 | 1.97 | 18.25 | 32.97 | 26.38 | 166 | 0.056 |
| 50 | 2 | 50 | 1.16 | 18.32 | 33.10 | 50 | 1.16 | 18.32 | 33.10 | 26.54 | 151 | 0.088 |
| 75 | 〃 | 75 | 1.09 | 18.35 | 33.15 | 75 | 1.09 | 18.35 | 33.15 | 26.59 | 146 | 0.125 |
| 100 | 〃 | 100 | 1.09 | 18.38 | 33.21 | 100 | 1.09 | 18.38 | 33.21 | 26.62 | 143 | 0.161 |
| 150 | 10 | 148 | 1.12 | 18.43 | 33.30 | 150 | 1.12 | 18.42 | 33.28 | 26.68 | 137 | 0.231 |
| 200 | 〃 | 197 | 1.18 | 18.45 | 33.33 | 200 | 1.18 | 18.45 | 33.33 | 26.71 | 135 | 0.299 |
| 300 | 〃 | — | — | — | — | 300 | 1.27 | 18.52 | 33.46 | 26.81 | 125 | 0.429 |
| 400 | 〃 | — | — | — | — | 400 | 1.36 | 18.58 | 33.57 | 26.89 | 117 | 0.550 |
| 500 | 14 | 488 | 1.45 | 18.65 | 33.69 | 500 | 1.48 | 18.65 | 33.69 | 26.98 | 109 | 0.664 |
| 600 | 〃 | 584 | 1.58 | 18.70 | 33.78 | 600 | 1.62 | 18.72 | 33.82 | 27.07 | 100 | 0.770 |

**Station Ho 16**

Date June 29 Time 1610～1700 (S.M.T.) Latitude 47°28′N Longitude 151°20′E
Wind SE 1 Weather f Air Temp. 4.2°C Sea SE 1 Swell ESE 2 Col. 5 Tr. 10m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.0 | 18.13 | 32.76 | 0 | 5.0 | 18.13 | 32.76 | 25.92 | 210 | 0 |
| 10 | 10 | 10 | 3.13 | 18.14 | 32.77 | 10 | 3.13 | 18.14 | 32.77 | 26.11 | 192 | 0.020 |
| 20 | 〃 | 20 | 2.40 | 18.16 | 32.81 | 20 | 2.40 | 18.16 | 32.81 | 26.21 | 182 | 0.039 |
| 30 | 〃 | 30 | 1.14 | 18.23 | 32.94 | 30 | 1.14 | 18.23 | 32.94 | 26.40 | 164 | 0.056 |
| 50 | 10 | 49 | 0.81 | 18.31 | 33.08 | 50 | 0.82 | 18.31 | 33.08 | 26.54 | 151 | 0.088 |
| 75 | 〃 | 74 | 0.86 | 18.37 | 33.19 | 75 | 0.87 | 18.37 | 33.19 | 26.62 | 143 | 0.125 |
| 100 | 〃 | 98 | 0.93 | 18.40 | 33.24 | 100 | 0.93 | 18.40 | 33.24 | 26.67 | 138 | 0.160 |
| 150 | 8 | 149 | 0.94 | 18.44 | 33.31 | 150 | 1.08 | 18.44 | 33.31 | 26.71 | 135 | 0.229 |
| 200 | 〃 | 198 | 1.18 | 18.46 | 33.35 | 200 | 1.18 | 18.46 | 33.35 | 26.73 | 133 | 0.297 |
| 300 | 〃 | 296 | 1.34 | 18.46 | 33.35 | 300 | 1.35 | 18.48 | 33.39 | 26.75 | 131 | 0.430 |

Table 35. (Continued)

**Station Ho 17**

Date June 30 Time 0600~0710 (S.M.T.) Latitude 45°41′N Longitude 150°50′E
Wind ESE 1 Weather f Air Temp. 4.9°C Sea ENE 1 Swell ENE 2 Col. 5 Tr. 9m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.8 | 18.27 | 33.01 | 0 | 4.8 | 18.27 | 33.01 | 26.14 | 189 | 0 |
| 10 | 2 | 10 | 4.53 | 18.27 | 33.01 | 10 | 4.53 | 18.27 | 33.01 | 26.17 | 186 | 0.019 |
| 20 | 〃 | 20 | 4.13 | 18.29 | 33.04 | 20 | 4.13 | 18.29 | 33.04 | 26.24 | 179 | 0.037 |
| 30 | 〃 | 30 | 3.59 | 18.27 | 33.01 | 30 | 3.59 | 18.29 | 33.04 | 26.29 | 174 | 0.055 |
| 50 | 16 | 48 | 2.47 | 18.31 | 33.08 | 50 | 2.28 | 18.31 | 33.08 | 26.43 | 161 | 0.089 |
| 75 | 〃 | 72 | 1.60 | 18.33 | 33.12 | 75 | 1.50 | 18.33 | 33.12 | 26.52 | 153 | 0.128 |
| 100 | 〃 | 96 | 1.28 | 18.36 | 33.17 | 100 | 1.27 | 18.36 | 33.17 | 26.59 | 146 | 0.165 |
| 150 | 16 | 144 | 1.44 | 18.44 | 33.31 | 150 | 1.50 | 18.44 | 33.31 | 26.68 | 137 | 0.236 |
| 200 | 〃 | 192 | 1.64 | 18.50 | 33.42 | 200 | 1.82 | 18.52 | 33.46 | 26.77 | 129 | 0.303 |
| 300 | 〃 | 287 | 2.78 | 18.70 | 33.78 | 300 | 2.82 | 18.72 | 33.82 | 26.98 | 109 | 0.423 |
| 400 | 〃 | 382 | 3.05 | 18.83 | 34.02 | 400 | 3.14 | 18.84 | 34.04 | 27.13 | 95 | 0.527 |
| 500 | 26 | 449 | 3.22 | 18.88 | 34.11 | 500 | 3.24 | 18.89 | 34.13 | 27.19 | 89 | 0.622 |

**Station Ho 18**

Date July 17 Time 1900~2000 (S.M.T.) Latitude 45°05′N Longitude 145°25′E
Wind SE 2 Weather b Air Temp. 13.0°C Sea SE 1 Swell × Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 10.4 | 17.89 | 32.32 | 0 | 10.4 | 17.89 | 32.32 | 24.81 | 315 | 0 |
| 10 | 0 | 10 | 9.20 | 17.89 | 32.32 | 10 | 9.20 | 17.89 | 32.32 | 25.01 | 296 | 0.030 |
| 20 | 〃 | 20 | 2.96 | 18.03 | 32.57 | 20 | 2.96 | 18.03 | 32.57 | 25.97 | 205 | 0.055 |
| 30 | 〃 | 30 | 0.60 | 18.08 | 32.66 | 30 | 0.60 | 18.08 | 32.66 | 26.21 | 182 | 0.074 |
| 50 | 0 | 50 | 0.20 | 18.22 | 32.92 | 50 | 0.20 | 18.22 | 32.92 | 26.44 | 160 | 0.108 |
| 75 | 〃 | 75 | -0.20 | 18.26 | 32.99 | 75 | -0.20 | 18.26 | 32.99 | 26.51 | 154 | 0.147 |
| 100 | 〃 | 100 | -0.37 | 18.33 | 33.12 | 100 | -0.37 | 18.33 | 33.12 | 26.63 | 142 | 0.184 |
| 150 | 14 | 146 | -0.16 | 18.40 | 33.24 | 150 | -0.16 | 18.40 | 33.24 | 26.77 | 129 | 0.252 |
| 200 | 〃 | 195 | 0.27 | 18.46 | 33.35 | 200 | 0.33 | 18.46 | 33.35 | 26.78 | 128 | 0.316 |
| 300 | 〃 | 295 | 0.42 | 18.54 | 33.50 | 300 | 0.43 | 18.54 | 33.50 | 26.89 | 117 | 0.438 |
| 400 | 〃 | 394 | 0.72 | 18.58 | 33.57 | 400 | 0.77 | 18.60 | 33.60 | 26.96 | 111 | 0.552 |
| 500 | 14 | 490 | 1.30 | 18.65 | 33.69 | 500 | 1.33 | 18.66 | 33.71 | 27.00 | 107 | 0.662 |
| 600 | 〃 | 590 | 1.53 | 18.68 | 33.75 | 600 | 1.54 | 18.72 | 33.82 | 27.08 | 99 | 0.766 |
| 800 | 〃 | 790 | 1.87 | 18.85 | 34.05 | 800 | 1.88 | 18.86 | 34.07 | 27.26 | 82 | 0.951 |
| 1000 | 〃 | 988 | 2.16 | 19.02 | 34.36 | | | | | | | |

Table 35. (Continued)

**Station Ho 19**

Date July 12 Time 0630~0730 (S.M.T.) Latitude 45°47′N Longitude 147°34′E
Wind SW 3 Weather b Air Temp. 9.9°C Sea SW Swell SW Col. 5 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 7.9 | 18.07 | 32.65 | 0 | 7.9 | 18.07 | 32.65 | 25.46 | 253 | 0 |
| 10 | 14 | 10 | 7.71 | 18.07 | 32.65 | 10 | 7.71 | 18.07 | 32.65 | 25.49 | 250 | 0.025 |
| 20 | 〃 | 20 | 4.96 | 18.16 | 32.81 | 20 | 4.96 | 18.16 | 32.81 | 25.96 | 206 | 0.048 |
| 30 | 〃 | 29 | 3.55 | 18.26 | 32.99 | 30 | 3.50 | 18.26 | 32.99 | 26.25 | 178 | 0.067 |
| 50 | 24 | 46 | 1.42 | 18.28 | 33.03 | 50 | 1.00 | 18.28 | 33.03 | 26.49 | 155 | 0.100 |
| 75 | 〃 | 69 | 0.57 | 18.31 | 33.08 | 75 | 0.54 | 18.34 | 33.13 | 26.60 | 145 | 0.138 |
| 100 | 〃 | 91 | 0.46 | 18.31 | 33.08 | 100 | 0.47 | 18.37 | 33.19 | 26.64 | 141 | 0.174 |
| 150 | 36 | 121 | 0.50 | 18.37 | 33.19 | 150 | 0.58 | 18.42 | 33.28 | 26.71 | 135 | 0.243 |
| 200 | 〃 | 162 | 0.62 | 18.44 | 33.31 | 200 | 0.70 | 18.47 | 33.37 | 26.78 | 128 | 0.309 |
| 300 | 〃 | 242 | 0.69 | 18.50 | 33.42 | 300 | 0.78 | 18.54 | 33.50 | 26.87 | 119 | 0.433 |
| 400 | 〃 | 332 | (0.89) | (18.56) | (33.53) | 400 | 1.02 | 18.60 | 33.60 | 26.94 | 113 | 0.549 |
| 500 | 39 | 403 | 1.02 | 18.62 | 33.64 | 500 | 1.20 | 18.66 | 33.71 | 27.01 | 106 | 0.659 |
| 600 | 〃 | 492 | 1.20 | 18.65 | 33.69 | 600 | 1.42 | 18.73 | 33.84 | 27.10 | 98 | 0.762 |
| 800 | 〃 | 577 | 1.35 | 18.72 | 33.82 | 800 | 1.86 | 18.84 | 34.04 | 27.23 | 85 | 0.949 |
| 1000 | 〃 | 868 | 1.96 | 18.87 | 34.09 | | | | | | | |

**Station Ho 20**

Date July 12 Time 1930~2030 (S.M.T.) Latitude 46°48′N Longitude 149°45′E
Wind W 3 Weather o Air Temp. 8.8°C Sea W 2 Swell W 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 8.5 | 17.83 | 32.21 | 0 | 8.5 | 17.83 | 32.21 | 25.04 | 293 | 0 |
| 10 | 12 | 10 | 8.38 | 17.83 | 32.21 | 10 | 8.38 | 17.83 | 32.21 | 25.05 | 292 | 0.029 |
| 20 | 〃 | 20 | 4.64 | 17.88 | 32.30 | 20 | 4.64 | 17.88 | 32.30 | 25.60 | 240 | 0.056 |
| 30 | 〃 | 29 | 1.86 | 17.93 | 32.39 | 30 | 1.73 | 17.93 | 32.39 | 25.93 | 209 | 0.078 |
| 50 | 24 | 46 | 0.46 | 18.03 | 32.57 | 50 | −0.25 | 18.03 | 32.57 | 26.18 | 185 | 0.117 |
| 75 | 〃 | 69 | −0.79 | 18.16 | 32.81 | 75 | −0.78 | 18.17 | 32.83 | 26.41 | 163 | 0.161 |
| 100 | 〃 | 91 | −0.79 | 18.26 | 32.99 | 100 | −1.14 | 18.23 | 32.94 | 26.50 | 154 | 0.201 |
| 150 | 30 | 115 | −1.17 | 18.26 | 32.99 | 150 | −1.15 | 18.30 | 33.06 | 26.61 | 144 | 0.275 |
| 200 | 〃 | 153 | −1.15 | 18.31 | 33.08 | 200 | −0.62 | 18.37 | 33.19 | 26.70 | 135 | 0.342 |
| 300 | 〃 | 230 | −0.21 | 18.39 | 33.22 | 300 | 0.40 | 18.46 | 33.35 | 26.78 | 128 | 0.468 |
| 400 | 〃 | 306 | 0.47 | 18.50 | 33.42 | 400 | 0.83 | 18.53 | 33.48 | 26.85 | 121 | 0.592 |
| 500 | 51 | 372 | 0.76 | 18.53 | 33.48 | 500 | 1.10 | 18.60 | 33.60 | 26.93 | 114 | 0.710 |
| 600 | 〃 | 460 | 1.01 | 18.57 | 33.55 | 600 | 1.28 | 18.67 | 33.73 | 27.04 | 103 | 0.820 |
| 800 | 〃 | 644 | 1.28 | 18.70 | 33.78 | 800 | 1.70 | 18.84 | 34.04 | 27.23 | 85 | 1.012 |
| 1000 | 〃 | 838 | 1.84 | 18.87 | 34.09 | | | | | | | |

Table 35. (Continued)

**Station Ho 21**

Date July 13 Time 1910～2010 (S.M.T.) Latitude 48°07′N Longitude 151°42′E
Wind NW 2 Weather o Air Temp. 7.0°C Sea NW 2 Swell NW 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.7 | 17.93 | 32.39 | 0 | 6.7 | 17.93 | 32.39 | 25.43 | 256 | 0 |
| 10 | 8 | 10 | 6.66 | 17.93 | 32.39 | 10 | 6.66 | 17.93 | 32.39 | 25.43 | 256 | 0.026 |
| 20 | 〃 | 20 | 6.55 | 17.93 | 32.39 | 20 | 6.55 | 17.93 | 32.39 | 25.45 | 254 | 0.052 |
| 30 | 〃 | 30 | 5.40 | 17.97 | 32.47 | 30 | 5.40 | 17.97 | 32.47 | 25.64 | 236 | 0.077 |
| 50 | 14 | 49 | 0.21 | 18.15 | 32.79 | 50 | 0.20 | 18.15 | 32.79 | 26.33 | 171 | 0.118 |
| 75 | 〃 | 73 | −0.12 | 18.31 | 33.08 | 75 | −0.14 | 18.31 | 33.08 | 26.54 | 151 | 0.158 |
| 100 | 〃 | 97 | −0.28 | 18.34 | 33.14 | 100 | −0.28 | 18.34 | 33.14 | 26.59 | 146 | 0.195 |
| 150 | 18 | 148 | 0.03 | 18.36 | 33.17 | 150 | 0.04 | 18.38 | 33.21 | 26.69 | 136 | 0.266 |
| 200 | 〃 | 197 | 0.85 | 18.42 | 33.28 | 200 | 0.85 | 18.42 | 33.28 | 26.70 | 135 | 0.334 |
| 300 | 〃 | 297 | 1.12 | 18.50 | 33.42 | 300 | 1.12 | 18.50 | 33.42 | 26.79 | 127 | 0.465 |
| 400 | 〃 | 396 | 1.42 | 18.57 | 33.55 | 400 | 1.41 | 18.57 | 33.55 | 26.87 | 119 | 0.589 |
| 500 | 22 | 470 | 1.46 | 18.63 | 33.66 | 500 | 1.50 | 18.66 | 33.71 | 27.00 | 107 | 0.703 |
| 600 | 〃 | 566 | 1.51 | 18.72 | 33.82 | 600 | 1.62 | 18.74 | 33.86 | 27.24 | 84 | 0.800 |
| 800 | 〃 | 760 | 1.97 | 18.86 | 34.07 | 800 | 1.98 | 18.88 | 34.11 | 27.29 | 80 | 0.969 |
| 1000 | 〃 | 956 | 2.26 | 18.96 | 34.25 | | | | | | | |

**Station Ho 22**

Date July 14 Time 1830～1930 (S.M.T.) Latitude 49°37′N Longitude 153°11′E
Wind WSW 2 Weather f Air Temp. 5.0°C Sea WSW 1 Swell W 1 Col. 7 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 4.6 | 18.38 | 33.21 | 0 | 4.6 | 18.38 | 33.21 | 26.31 | 173 | 0 |
| 10 | 6 | 10 | 3.77 | 18.43 | 33.30 | 10 | 3.77 | 18.43 | 33.30 | 26.48 | 156 | 0.016 |
| 20 | 〃 | 20 | 1.98 | 18.44 | 33.31 | 20 | 1.98 | 18.44 | 33.31 | 26.64 | 141 | 0.031 |
| 30 | 〃 | 30 | 1.97 | 18.45 | 33.33 | 30 | 1.97 | 18.45 | 33.33 | 26.66 | 139 | 0.045 |
| 50 | 10 | 49 | 1.57 | 18.45 | 33.33 | 50 | 1.64 | 18.46 | 33.35 | 26.70 | 135 | 0.072 |
| 75 | 〃 | 74 | 1.60 | (18.47) | (33.37) | 75 | 1.60 | 18.47 | 33.37 | 26.72 | 134 | 0.106 |
| 100 | 〃 | 98 | 1.59 | (18.48) | (33.39) | 100 | 1.59 | 18.48 | 33.39 | 26.73 | 133 | 0.139 |
| 150 | 16 | 147 | 1.57 | 18.50 | 33.42 | 150 | 1.57 | 18.50 | 33.42 | 26.76 | 130 | 0.205 |
| 200 | 〃 | 196 | 1.52 | 18.51 | 33.44 | 200 | 1.52 | 18.51 | 33.44 | 26.78 | 128 | 0.270 |
| 300 | 〃 | 295 | 1.52 | 18.54 | 33.50 | 300 | 1.52 | 18.54 | 33.50 | 26.82 | 124 | 0.397 |

Table 35. (Continued)

**Station Ho 23**

Date July 23 Time 1600～1700 (S.M.T.) Latitude 50°30′N Longitude 153°32′E
Wind N 1 Weather o Air Temp. 6.5°C Sea N 1 Swell N 1 Col. 6 Tr. 8m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.1 | 18.17 | 32.83 | 0 | 7.1 | 18.17 | 32.83 | 25.71 | 230 | 0 |
| 10 | 1 | 10 | 5.68 | 18.24 | 32.95 | 10 | 5.68 | 18.24 | 32.95 | 26.00 | 202 | 0.022 |
| 20 | 〃 | 20 | 3.89 | 18.28 | 33.03 | 20 | 3.89 | 18.28 | 33.03 | 26.25 | 178 | 0.041 |
| 30 | 〃 | 30 | 2.28 | 18.34 | 33.13 | 30 | 2.28 | 18.34 | 33.13 | 26.49 | 155 | 0.058 |
| 50 | 1 | 50 | 1.33 | 18.40 | 33.24 | 50 | 1.33 | 18.40 | 33.24 | 26.64 | 141 | 0.088 |
| 75 | 〃 | 75 | 1.04 | 18.45 | 33.33 | 75 | 1.04 | 18.45 | 33.33 | 26.73 | 133 | 0.122 |
| 100 | 〃 | 100 | 0.99 | 18.48 | 33.39 | 100 | 0.99 | 18.48 | 33.39 | 26.77 | 129 | 0.155 |
| 150 | 3 | 150 | 1.27 | 18.52 | 33.46 | 150 | 1.27 | 18.52 | 33.46 | 26.81 | 125 | 0.219 |
| 200 | 〃 | 200 | 1.38 | 18.53 | 33.48 | 200 | 1.38 | 18.53 | 33.48 | 26.82 | 124 | 0.282 |
| 300 | 〃 | 300 | (1.43) | 18.58 | 33.57 | 300 | 1.43 | 18.58 | 33.57 | 26.89 | 117 | 0.403 |
| 400 | 4 | 400 | (1.48) | 18.65 | 33.69 | 400 | 1.48 | 18.65 | 33.69 | 26.98 | 109 | 0.517 |
| 500 | 〃 | 500 | 1.49 | 18.69 | 33.77 | 500 | 1.49 | 18.69 | 33.77 | 27.03 | 104 | 0.625 |
| 600 | 〃 | 598 | 1.52 | 18.76 | 33.91 | 600 | 1.52 | 18.76 | 33.91 | 27.13 | 95 | 0.726 |

**Station Ho 24**

Date July 16 Time 1600～1700 (S.M.T.) Latitude 51°18′N Longitude 154°24′E
Wind W 3 Weather f Air Temp. 6.1°C Sea W 3 Swell NW 1 Col. 6 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 5.9 | 18.28 | 33.03 | 0 | 5.9 | 18.28 | 33.03 | 26.03 | 199 | 0 |
| 10 | 4 | 10 | 4.94 | 18.29 | 33.04 | 10 | 4.94 | 18.29 | 33.04 | 26.15 | 188 | 0.019 |
| 20 | 〃 | 20 | 4.09 | 18.29 | 33.04 | 20 | 4.09 | 18.29 | 33.04 | 26.24 | 179 | 0.037 |
| 30 | 〃 | 30 | 3.19 | 18.33 | 33.12 | 30 | 3.19 | 18.33 | 33.12 | 26.39 | 165 | 0.054 |
| 50 | 18 | 48 | 1.97 | 18.36 | 33.17 | 50 | 1.95 | 18.36 | 33.17 | 26.53 | 152 | 0.086 |
| 75 | 〃 | 72 | (1.44) | (18.40) | (33.24) | 75 | 1.42 | 18.40 | 33.24 | 26.63 | 142 | 0.123 |
| 100 | 〃 | 95 | (1.17) | (18.43) | (33.30) | 100 | 1.14 | 18.44 | 33.31 | 26.70 | 135 | 0.158 |
| 150 | 22 | 139 | 0.93 | 18.48 | 33.39 | 150 | 0.93 | 18.48 | 33.39 | 26.78 | 128 | 0.224 |
| 200 | 〃 | 185 | 0.90 | 18.50 | 33.42 | 200 | 0.91 | 18.51 | 33.44 | 26.81 | 125 | 0.288 |
| 300 | 〃 | 281 | 1.04 | 18.55 | 33.51 | 300 | 1.11 | 18.56 | 33.53 | 26.87 | 119 | 0.411 |
| 400 | 〃 | 376 | 1.38 | 18.60 | 33.60 | 400 | 1.32 | 18.61 | 33.62 | 26.93 | 114 | 0.528 |
| 500 | 25 | 467 | 1.40 | 18.66 | 33.71 | 500 | 1.40 | 18.68 | 33.75 | 27.03 | 104 | 0.638 |
| 600 | 〃 | 563 | 1.38 | 18.73 | 33.84 | | | | | | | |

Table 35. (Continued)

**Station Ho 25**

Date July 17 Time 1600~1700 (S.M.T.) Latitude 51°53′N Longitude 155°32′E
Wind W 2 Weather f Air Temp. 7.0°C Sea NW 2 Swell NW 2 Col. 6 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.9 | 18.25 | 32.97 | 0 | 6.9 | 18.25 | 32.97 | 25.86 | 215 | 0 |
| 10 | 10 | 10 | 6.24 | 18.24 | 32.95 | 10 | 6.24 | 18.24 | 32.95 | 25.93 | 209 | 0.021 |
| 20 | 〃 | 20 | 4.40 | 18.27 | 33.01 | 20 | 4.40 | 18.27 | 33.01 | 26.19 | 184 | 0.041 |
| 30 | 〃 | 30 | 4.09 | 18.29 | 33.04 | 30 | 4.09 | 18.29 | 33.04 | 26.24 | 179 | 0.059 |
| 50 | 12 | 49 | 1.60 | 18.33 | 33.12 | 50 | 1.55 | 18.33 | 33.12 | 26.53 | 152 | 0.092 |
| 75 | 〃 | 74 | 1.07 | 18.36 | 33.17 | 75 | 1.05 | 18.36 | 33.17 | 26.61 | 144 | 0.129 |
| 100 | 12 | 98 | 0.84 | 18.39 | 33.22 | 100 | 0.83 | 18.39 | 33.22 | 26.66 | 139 | 0.164 |
| 150 | 〃 | 147 | 0.57 | 18.43 | 33.30 | 150 | 0.57 | 18.43 | 33.30 | 26.72 | 134 | 0.232 |
| 200 | 〃 | 196 | 0.87 | 18.51 | 33.44 | 200 | 0.90 | 18.51 | 33.44 | 26.81 | 125 | 0.297 |
| 300 | 〃 | 271 | 1.30 | 18.59 | 33.59 | | | | | | | |

**Station Ho 26**

Date July 19 Time 1800~1830 (S.M.T.) Latitude 52°32′N Longitude 155°18′E
Wind WSW 1 Weather o Air Temp. 7.1°C Sea WSW 2 Swell W 3 Col. 6 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 6.6 | 18.19 | 32.86 | 0 | 6.6 | 18.19 | 32.86 | 25.81 | 202 | 0 |
| 10 | 0 | 10 | 6.43 | 18.17 | 32.83 | 10 | 6.43 | 18.17 | 32.83 | 25.80 | 221 | 0.022 |
| 20 | 〃 | 20 | 6.37 | 18.17 | 32.83 | 20 | 6.37 | 18.17 | 32.83 | 25.81 | 220 | 0.044 |
| 30 | 〃 | 30 | 5.03 | 18.22 | 32.92 | 30 | 5.03 | 18.22 | 32.92 | 26.04 | 198 | 0.065 |
| 50 | 0 | 50 | 2.48 | 18.29 | 33.04 | 50 | 2.48 | 18.29 | 33.04 | 26.52 | 153 | 0.100 |
| 75 | 〃 | 75 | 2.05 | 18.34 | 33.14 | 75 | 2.05 | 18.34 | 33.14 | 26.58 | 147 | 0.138 |

Table 35. (Continued)

**Station Ho 27**

Date July 20 Time 1800～1820 (S.M.T.) Latitude 52°37′N Longitude 155°36′E
Wind SE 3 Weather r Air Temp. 9.0°C Sea S 1 Swell S 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.3 | 17.99 | 32.50 | 0 | 7.3 | 17.99 | 32.50 | 25.43 | 256 | 0 |
| 10 | 8 | 10 | 6.89 | 18.06 | 32.63 | 10 | 6.89 | 18.06 | 32.63 | 25.59 | 241 | 0.025 |
| 20 | 〃 | 20 | 2.73 | 18.13 | 32.76 | 20 | 2.73 | 18.13 | 32.76 | 26.13 | 190 | 0.047 |
| 30 | 〃 | 30 | 1.97 | 18.17 | 32.83 | 30 | 1.97 | 18.17 | 32.83 | 26.26 | 177 | 0.065 |
| 50 | 〃 | 50 | 1.76 | 18.19 | 32.86 | 50 | 1.76 | 18.19 | 32.86 | 26.30 | 173 | 0.100 |

**Station Ho 28**

Date July 21 Time 1920～1940 (S.M.T.) Latitude 54°50′N Longitude 155°08′F
Wind NNE 3 Weather r Air Temp. 9.5°C Sea NNE 2 Swell SSW 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 9.4 | 18.02 | 32.56 | 0 | 9.4 | 18.02 | 32.56 | 25.17 | 281 | 0 |
| 10 | 3 | 10 | 8.68 | 18.11 | 32.72 | 10 | 8.68 | 18.11 | 32.72 | 25.40 | 259 | 0.027 |
| 20 | 〃 | 20 | 8.08 | 18.12 | 32.74 | 20 | 8.08 | 18.12 | 32.74 | 25.51 | 249 | 0.052 |
| 30 | 〃 | 30 | 3.20 | 18.17 | 32.83 | 30 | 3.20 | 18.17 | 32.83 | 26.15 | 188 | 0.074 |
| 50 | 〃 | 50 | 0.33 | 18.29 | 33.04 | 50 | 0.33 | 18.29 | 33.04 | 26.54 | 151 | 0.108 |

**Station Ho 29**

Date July 22 Time 2130～2200 (S.M.T.) Latitude 56°11′N Longitude 155°03′E
Wind W 2 Weather b Air Temp. 10.0°C Sea W 1 Swell W 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 9.9 | 18.07 | 32.65 | 0 | 9.9 | 18.07 | 32.65 | 25.16 | 282 | 0 |
| 10 | 12 | 10 | 8.97 | 18.12 | 32.74 | 10 | 8.97 | 18.12 | 32.74 | 25.37 | 262 | 0.027 |
| 20 | 〃 | 20 | 5.94 | 18.25 | 32.97 | 20 | 5.94 | 18.25 | 32.97 | 25.99 | 203 | 0.050 |
| 30 | 〃 | 30 | 3.33 | 18.27 | 33.01 | 30 | 3.33 | 18.27 | 33.01 | 26.29 | 174 | 0.069 |
| 50 | 〃 | 49 | 0.21 | 18.31 | 33.08 | 50 | 0.21 | 18.31 | 33.08 | 26.57 | 148 | 0.101 |
| 75 | 12 | 69 | 0.18 | 18.32 | 33.10 | 75 | 0.18 | 18.32 | 33.10 | 26.59 | 146 | 0.138 |

Table 35. (Continued)

**Station Ho 30**

Date July 23 Time 0600~0630 (S.M.T.) Latitude 55°24′N Longitude 153°08′E
Wind NNW 3 Weather b Air Temp. 10.2°C Sea NNW 1 Swell NNW 1 Col. 5 Tr. 22m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.8 | 18.27 | 33.01 | 0 | 8.8 | 18.27 | 33.01 | 25.60 | 240 | 0 |
| 10 | 6 | 10 | 8.80 | 18.29 | 33.04 | 10 | 8.80 | 18.29 | 33.04 | 25.63 | 237 | 0.024 |
| 20 | 〃 | 20 | 5.96 | 18.32 | 33.10 | 20 | 5.96 | 18.32 | 33.10 | 26.08 | 194 | 0.046 |
| 30 | 12 | 29 | 2.08 | 18.31 | 33.08 | 30 | 2.08 | 18.32 | 33.10 | 26.47 | 157 | 0.064 |
| 50 | 〃 | 49 | 1.55 | 18.32 | 33.10 | 50 | 1.55 | 18.32 | 33.10 | 26.50 | 154 | 0.095 |
| 75 | 18 | 72 | 1.55 | 18.34 | 33.13 | 75 | 1.55 | 18.34 | 33.13 | 26.53 | 152 | 0.133 |
| 100 | 〃 | 95 | -0.03 | 18.43 | 33.30 | 100 | -0.02 | 18.44 | 33.31 | 26.78 | 128 | 0.168 |
| 150 | 28 | 132 | 0.18 | 18.45 | 33.33 | 150 | 0.40 | 18.48 | 33.39 | 26.80 | 126 | 0.232 |
| 200 | 〃 | 177 | 0.77 | 18.51 | 33.44 | 200 | 0.86 | 18.52 | 33.46 | 26.83 | 123 | 0.294 |
| 300 | 〃 | 270 | 1.07 | 18.56 | 33.53 | 300 | 1.08 | 18.58 | 33.57 | 26.90 | 117 | 0.414 |
| 400 | 〃 | 367 | 1.09 | 18.65 | 33.69 | 400 | 1.06 | 18.65 | 33.69 | 27.00 | 107 | 0.526 |
| 500 | 〃 | 466 | 0.97 | 18.70 | 33.78 | | | | | | | |

**Station Ho 31**

Date July 23 Time 1330~1400 (S.M.T.) Latitude 55°00′N Longitude 152°00′E
Wind NNW 3 Weather b Air Temp. 12.0°C Sea NNW 1 Swell NNW 1 Col. 6 Tr. 11m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 9.3 | 18.28 | 33.03 | 0 | 9.3 | 18.28 | 33.03 | 25.55 | 245 | 0 |
| 10 | 6 | 10 | 8.58 | 18.27 | 33.01 | 10 | 8.58 | 18.27 | 33.01 | 25.64 | 236 | 0.024 |
| 20 | 〃 | 20 | 8.08 | 18.30 | 33.06 | 20 | 8.08 | 18.30 | 33.06 | 25.76 | 225 | 0.047 |
| 30 | 〃 | 30 | 1.26 | 18.34 | 33.13 | 30 | 1.26 | 18.34 | 33.13 | 26.55 | 150 | 0.066 |
| 50 | 22 | 46 | -0.31 | 18.38 | 33.21 | 50 | -0.40 | 18.39 | 33.22 | 26.71 | 135 | 0.095 |
| 75 | 〃 | 70 | -0.41 | 18.40 | 33.24 | 75 | -0.41 | 18.43 | 33.30 | 26.76 | 130 | 0.128 |
| 100 | 34 | 83 | -0.36 | 18.44 | 33.31 | 100 | -0.20 | 18.46 | 33.35 | 26.81 | 125 | 0.160 |
| 150 | 〃 | 124 | 0.08 | 18.46 | 33.35 | 150 | 0.68 | 18.51 | 33.44 | 26.83 | 123 | 0.222 |
| 200 | 〃 | 166 | 0.88 | 18.53 | 33.48 | 200 | 1.00 | 18.56 | 33.53 | 26.88 | 118 | 0.283 |
| 300 | 〃 | 250 | 1.04 | 18.60 | 33.60 | | | | | | | |

Table 35. (Continued)

**Station Ho 32**

Date July 23 Time 2000～2040 (S.M.T.) Latitude 54°08′N Longitude 152°41′E
Wind NNW 2 Weather b Air Temp. 8.4°C Sea NNW 1 Swell N 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.0 | 18.27 | 33.01 | 0 | 8.0 | 18.27 | 33.01 | 25.73 | 228 | 0 |
| 10 | 6 | 10 | 7.88 | 18.28 | 33.03 | 10 | 7.88 | 18.28 | 33.03 | 25.76 | 225 | 0.023 |
| 20 | 〃 | 20 | 6.24 | 18.31 | 33.08 | 20 | 6.24 | 18.31 | 33.08 | 26.03 | 199 | 0.044 |
| 30 | 〃 | 30 | 3.27 | 18.33 | 33.12 | 30 | 3.27 | 18.33 | 33.12 | 26.38 | 166 | 0.062 |
| 50 | 22 | 46 | 1.09 | 18.37 | 33.19 | 50 | 0.85 | 18.37 | 33.19 | 26.62 | 143 | 0.093 |
| 75 | 〃 | 70 | 0.28 | 18.39 | 33.22 | 75 | 0.24 | 18.40 | 33.24 | 26.70 | 135 | 0.128 |
| 100 | 〃 | 93 | 0.10 | 18.40 | 33.24 | 100 | 0.08 | 18.44 | 33.31 | 26.77 | 129 | 0.161 |
| 150 | 〃 | 139 | 0.22 | 18.48 | 33.39 | 150 | 0.20 | 18.50 | 33.42 | 26.85 | 121 | 0.224 |
| 200 | 38 | 158 | 0.15 | 18.50 | 33.42 | 200 | 0.80 | 18.55 | 33.51 | 26.89 | 117 | 0.284 |
| 300 | 〃 | 243 | 1.29 | 18.59 | 33.59 | 300 | 1.36 | 18.64 | 33.68 | 26.97 | 110 | 0.398 |
| 400 | 〃 | 332 | 1.37 | 18.66 | 33.71 | 400 | 1.24 | 18.70 | 33.78 | 27.07 | 100 | 0.503 |
| 500 | 〃 | 420 | 1.19 | 18.71 | 33.80 | | | | | | | |

**Station Ho 33**

Date July 24 Time 2000～2050 (S.M.T.) Latitude 53°05′N Longitude 153°30′E
Wind SW 1 Weather c Air Temp. 8.8°C Sea SW 1 Swell SSW 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.4 | 18.13 | 32.76 | 0 | 8.4 | 18.13 | 32.76 | 25.47 | 252 | 0 |
| 10 | 2 | 10 | 7.86 | 18.12 | 32.74 | 10 | 7.86 | 18.12 | 32.74 | 25.54 | 246 | 0.025 |
| 20 | 〃 | 20 | 7.24 | 18.13 | 32.76 | 20 | 7.24 | 18.13 | 32.76 | 25.64 | 236 | 0.049 |
| 30 | 〃 | 30 | 2.69 | (18.18) | (32.85) | 30 | 2.69 | 18.18 | 32.85 | 26.21 | 182 | 0.070 |
| 50 | 12 | 49 | 1.15 | (18.22) | (32.92) | 50 | 1.10 | 18.22 | 32.92 | 26.40 | 164 | 0.105 |
| 75 | 〃 | 74 | 0.45 | 18.27 | 33.01 | 75 | 0.44 | 18.27 | 33.01 | 26.50 | 154 | 0.145 |
| 100 | 〃 | 98 | 0.35 | 18.30 | 33.06 | 100 | 0.35 | 18.30 | 33.06 | 26.55 | 150 | 0.183 |
| 150 | 10 | 148 | 0.67 | 18.33 | 33.12 | 150 | 0.68 | 18.33 | 33.12 | 26.58 | 147 | 0.257 |
| 200 | 18 | 190 | 0.78 | 18.36 | 33.17 | 200 | 0.84 | 18.37 | 33.19 | 26.62 | 143 | 0.329 |
| 300 | 〃 | 288 | 1.14 | 18.48 | 33.39 | 300 | 1.20 | 18.50 | 33.42 | 26.79 | 127 | 0.464 |
| 400 | 〃 | 386 | 1.44 | 18.56 | 33.53 | 400 | 1.48 | 18.58 | 33.57 | 26.88 | 118 | 0.587 |
| 500 | 〃 | 485 | 1.65 | 18.66 | 33.71 | | | | | | | |

Table 35. (Continued)

**Station Ho 34**

Date July 25 Time 0600～0700 (S.M.T.) Latitude 52°08′N Longitude 152°14′E
Wind SW 3 Weather c Air Temp. 8.5°C Sea WSW 2 Swell WSW 2 Col. 5 Tr. 12m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.1 | 17.98 | 32.48 | 0 | 8.1 | 17.98 | 32.48 | 25.31 | 268 | 0 |
| 10 | 6 | 10 | 7.99 | 17.99 | 32.50 | 10 | 7.99 | 17.99 | 32.50 | 25.34 | 265 | 0.027 |
| 20 | 〃 | 20 | 2.63 | 18.21 | 32.90 | 20 | 2.63 | 18.21 | 32.90 | 26.27 | 176 | 0.049 |
| 30 | 〃 | 30 | 1.38 | 18.25 | 32.97 | 30 | 1.38 | 18.25 | 32.97 | 26.42 | 162 | 0.066 |
| 50 | 14 | 49 | 1.02 | 18.28 | 33.03 | 50 | 1.00 | 18.28 | 33.03 | 26.41 | 163 | 0.099 |
| 75 | 〃 | 73 | 0.44 | 18.30 | 33.06 | 75 | 0.44 | 18.30 | 33.06 | 26.54 | 151 | 0.138 |
| 100 | 〃 | 97 | 0.44 | 18.31 | 33.08 | 100 | 0.44 | 18.32 | 33.10 | 26.57 | 148 | 0.175 |
| 150 | 22 | 139 | 0.78 | 18.35 | 33.15 | 150 | 0.78 | 18.36 | 33.17 | 26.61 | 144 | 0.248 |
| 200 | 〃 | 185 | 0.77 | 18.38 | 33.21 | | | | | | | |

**Station Ho 35**

Date July 25 Time 1800～1840 (S.M.T.) Latitude 50°39′N Longitude 150°52′E
Wind ENE 3 Weather f Air Temp. 7.0°C Sea ENE 3 Swell ESE 1 Col. 5 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 7.9 | 17.84 | 32.23 | 0 | 7.9 | 17.84 | 32.23 | 25.14 | 284 | 0 |
| 10 | 0 | 10 | 7.27 | 17.83 | 32.21 | 10 | 7.27 | 17.83 | 32.21 | 25.21 | 277 | 0.028 |
| 20 | 〃 | 20 | 6.07 | 17.85 | 32.25 | 20 | 6.07 | 17.85 | 32.25 | 25.41 | 258 | 0.055 |
| 30 | 〃 | 30 | 1.87 | 18.03 | 32.57 | 30 | 1.87 | 18.03 | 32.57 | 26.07 | 195 | 0.078 |
| 50 | 0 | 50 | 1.09 | 18.17 | 32.83 | 50 | 1.09 | 18.17 | 32.83 | 26.32 | 172 | 0.115 |
| 75 | 〃 | 75 | −0.40 | 18.28 | 33.03 | 75 | −0.40 | 18.28 | 33.03 | 26.56 | 149 | 0.155 |
| 100 | 〃 | 100 | −0.36 | 18.29 | 33.04 | 100 | −0.36 | 18.29 | 33.04 | 26.57 | 148 | 0.192 |
| 150 | 6 | 150 | 0.15 | 18.30 | 33.06 | 150 | 0.15 | 18.30 | 33.06 | 26.56 | 149 | 0.266 |

Table 35. (Continued)

**Station Ho 36**

Date July 26 Time 0600～0650 (S.M.T.) Latitude 49°08′N Longitude 149°30′E
Wind E 1 Weather f Air Temp. 6.8°C Sea E 1 Swell ENE 1 Col. 6 Tr. 10m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\triangle$st (cl/ton) | $\triangle$D (dyn.m) |
| 0 | | 0 | 7.7 | 17.89 | 32.32 | 0 | 7.7 | 17.89 | 32.32 | 25.24 | 274 | 0 |
| 10 | 6 | 10 | 7.05 | 18.01 | 32.54 | 10 | 7.05 | 18.01 | 32.54 | 25.50 | 249 | 0.026 |
| 20 | 〃 | 20 | 6.68 | 18.07 | 32.65 | 20 | 6.68 | 18.07 | 32.65 | 25.63 | 237 | 0.050 |
| 30 | 〃 | 30 | 4.56 | 18.10 | 32.70 | 30 | 4.56 | 18.14 | 32.77 | 25.98 | 204 | 0.072 |
| 50 | 14 | 49 | 0.07 | 18.23 | 32.94 | 50 | 0.00 | 18.23 | 32.94 | 26.46 | 158 | 0.108 |
| 75 | 〃 | 73 | −0.44 | 18.31 | 33.08 | 75 | −0.44 | 18.30 | 33.06 | 26.59 | 146 | 0.146 |
| 100 | 〃 | 97 | −0.41 | 18.34 | 33.13 | 100 | −0.40 | 18.34 | 33.13 | 26.64 | 141 | 0.182 |
| 150 | 20 | 141 | 0.47 | 18.38 | 33.21 | 150 | 0.58 | 18.40 | 33.24 | 26.68 | 137 | 0.252 |
| 200 | 〃 | 188 | 0.88 | 18.44 | 33.31 | 200 | 0.93 | 18.46 | 33.35 | 26.74 | 132 | 0.320 |
| 300 | 〃 | 286 | 1.28 | 18.52 | 33.46 | 300 | 1.28 | 18.56 | 33.53 | 26.87 | 119 | 0.446 |
| 400 | 〃 | 383 | 1.30 | 18.64 | 33.68 | 400 | 1.38 | 18.64 | 33.68 | 26.97 | 110 | 0.561 |
| 500 | 17 | 488 | 1.42 | 18.70 | 33.78 | 500 | 1.44 | 18.68 | 33.75 | 27.02 | 105 | 0.669 |
| 600 | 〃 | 585 | 1.46 | 18.71 | 33.80 | 600 | 1.48 | 18.72 | 33.82 | 27.08 | 99 | 0.772 |

**Station Ho 37**

Date July 26 Time 1800～1850 (S.M.T.) Latitude 47°48′N Longitude 147°46′E
Wind E 3 Weather o Air Temp. 9.8°C Sea ENE 3 Swell ESE 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\triangle$st (cl/ton) | $\triangle$D (dyn.m) |
| 0 | | 0 | 11.3 | 17.78 | 32.12 | 0 | 11.3 | 17.78 | 32.12 | 24.50 | 345 | 0 |
| 10 | 8 | 10 | 11.25 | 17.75 | 32.07 | 10 | 11.25 | 17.75 | 32.07 | 24.47 | 348 | 0.035 |
| 20 | 〃 | 20 | 8.18 | 17.86 | 32.27 | 20 | 8.18 | 17.86 | 32.27 | 25.12 | 286 | 0.067 |
| 30 | 〃 | 30 | 1.51 | 17.94 | 32.41 | 30 | 1.51 | 17.94 | 32.41 | 25.96 | 206 | 0.092 |
| 50 | 18 | 48 | −0.70 | 18.15 | 32.79 | 50 | −0.90 | 18.16 | 32.81 | 26.40 | 164 | 0.129 |
| 75 | 〃 | 72 | −1.33 | 18.25 | 32.97 | 75 | −1.35 | 18.26 | 32.99 | 26.56 | 149 | 0.168 |
| 100 | 〃 | 95 | −1.24 | 18.29 | 33.04 | 100 | −1.20 | 18.32 | 33.10 | 26.64 | 141 | 0.204 |
| 150 | 28 | 132 | −0.69 | 18.37 | 33.19 | 150 | −0.65 | 18.38 | 33.21 | 26.71 | 135 | 0.273 |
| 200 | 〃 | 180 | −0.28 | 18.40 | 33.24 | 200 | −0.10 | 18.42 | 33.28 | 26.74 | 132 | 0.340 |
| 300 | 〃 | 277 | 0.44 | 18.47 | 33.37 | 300 | 0.44 | 18.49 | 33.40 | 26.82 | 124 | 0.468 |
| 400 | 〃 | 375 | 0.53 | 18.54 | 33.50 | 400 | 0.57 | 18.55 | 33.51 | 26.90 | 117 | 0.589 |
| 500 | 41 | — | — | — | — | 500 | 0.68 | 18.60 | 33.60 | 26.96 | 111 | 0.703 |
| 600 | 45 | 516 | 0.69 | 18.61 | 33.62 | | | | | | | |

Table 35. (Continued)

**Station Ho 38**

Date July 27 Time 0600～0700 (S.M.T.) Latitude 46°31′N Longitude 146°06′E

Wind NE 3 Weather o Air Temp. 11.0°C Sea NE 1 Swell ENE 1 Col. 4 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 11.8 | 17.84 | 32.23 | 0 | 11.8 | 17.84 | 32.23 | 24.50 | 345 | 0 |
| 10 | 8 | 10 | 11.72 | 17.86 | 32.27 | 10 | 11.72 | 17.86 | 32.27 | 24.54 | 341 | 0.034 |
| 20 | 〃 | 20 | 6.18 | 17.95 | 32.43 | 20 | 6.18 | 17.95 | 32.43 | 25.53 | 247 | 0.063 |
| 30 | 〃 | 30 | 2.73 | 18.15 | 32.79 | 30 | 2.73 | 18.15 | 32.79 | 26.17 | 186 | 0.085 |
| 50 | 14 | 49 | 1.80 | 18.21 | 32.90 | 50 | 1.80 | 18.21 | 32.90 | 26.39 | 165 | 0.120 |
| 75 | 〃 | 73 | 1.21 | 18.26 | 32.99 | 75 | 1.18 | 18.26 | 32.99 | 26.44 | 160 | 0.161 |
| 100 | 〃 | 97 | 0.45 | 18.28 | 33.03 | 100 | 0.15 | 18.30 | 33.06 | 26.56 | 149 | 0.200 |
| 150 | 30 | 140 | −0.92 | 18.30 | 33.06 | 150 | −0.80 | 18.35 | 33.15 | 26.67 | 138 | 0.272 |
| 200 | 〃 | 188 | −0.05 | 18.35 | 33.15 | 200 | 0.04 | 18.40 | 33.24 | 26.71 | 135 | 0.340 |
| 300 | 〃 | 282 | 0.41 | 18.43 | 33.30 | 300 | 0.42 | 18.46 | 33.35 | 26.78 | 128 | 0.471 |
| 400 | 〃 | 376 | 0.50 | 18.51 | 33.44 | 400 | 0.54 | 18.52 | 33.46 | 26.85 | 121 | 0.595 |
| 500 | 27 | 477 | 0.56 | 18.55 | 33.51 | 500 | 0.58 | 18.56 | 33.53 | 26.91 | 116 | 0.714 |
| 600 | 〃 | 575 | 0.71 | 18.59 | 33.59 | | | | | | | |

**Station Ho 39**

Date Aug. 6 Time 1800～1850 (S.M.T.) Latitude 46°17′N Longitude 146°11′E

Wind W 3 Weather bc Air Temp. 17.0°C Sea W 3 Swell WSW 2 Col. 3 Tr. 12m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 13.4 | 17.80 | 32.16 | 0 | 13.4 | 17.80 | 32.16 | 24.14 | 379 | 0 |
| 10 | 6 | 10 | 12.86 | 17.84 | 32.23 | 10 | 12.86 | 17.84 | 32.23 | 24.30 | 364 | 0.037 |
| 20 | 〃 | 20 | 3.47 | 17.90 | 32.34 | 20 | 3.47 | 17.90 | 32.34 | 25.74 | 227 | 0.067 |
| 30 | 〃 | 30 | 0.39 | 18.01 | 32.54 | 30 | 0.39 | 18.01 | 32.54 | 26.12 | 119 | 0.084 |
| 50 | 8 | 50 | −0.95 | 18.13 | 32.76 | 50 | −0.95 | 18.13 | 32.76 | 26.35 | 169 | 0.113 |
| 75 | 〃 | 75 | −1.16 | 18.20 | 32.88 | 75 | −1.16 | 18.20 | 32.88 | 26.47 | 157 | 0.154 |
| 100 | 〃 | 99 | −1.19 | 18.26 | 32.99 | 100 | −1.19 | 18.26 | 32.99 | 26.55 | 150 | 0.192 |
| 150 | 12 | 147 | −0.38 | 18.34 | 33.13 | 150 | −0.38 | 18.34 | 33.13 | 26.64 | 141 | 0.265 |
| 200 | 〃 | 196 | −0.35 | 18.39 | 33.22 | 200 | −0.24 | 18.39 | 33.22 | 26.71 | 135 | 0.334 |
| 300 | 〃 | 293 | 0.06 | 18.47 | 33.37 | 300 | 0.10 | 18.48 | 33.39 | 26.82 | 124 | 0.463 |
| 400 | 〃 | 391 | 0.45 | 18.53 | 33.48 | 400 | 0.37 | 18.53 | 33.48 | 26.88 | 118 | 0.583 |
| 500 | 9 | 486 | 0.60 | 18.57 | 33.55 | 500 | 0.65 | 18.58 | 33.57 | 26.93 | 114 | 0.699 |
| 600 | 〃 | 583 | 0.82 | 18.64 | 33.68 | 600 | 0.91 | 18.66 | 33.71 | 27.03 | 104 | 0.808 |
| 800 | 〃 | 780 | (1.46) | (18.78) | (33.93) | 800 | 1.52 | 18.78 | 33.93 | 27.17 | 91 | 1.005 |
| 1000 | 〃 | 978 | 2.11 | 18.92 | 34.18 | | | | | | | |

Table 35. (Continued)

**Station Ho 40**

Date Aug. 7 Time 0600～0650 (S.M.T.) Latitude 46°42′N Longitude 148°30′E
Wind SE 2 Weather c Air Temp. 13.0°C Sea SSW 3 Swell SW 2 Col. 4 Tr. 13m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 10.9 | 17.80 | 32.16 | 0 | 10.9 | 17.80 | 32.16 | 24.60 | 335 | 0 |
| 10 | 8 | 10 | 10.72 | 17.80 | 32.16 | 10 | 10.72 | 17.84 | 32.23 | 24.69 | 327 | 0.033 |
| 20 | 〃 | 20 | 4.54 | 17.95 | 32.43 | 20 | 4.54 | 17.95 | 32.43 | 25.71 | 230 | 0.061 |
| 30 | 〃 | 30 | 2.16 | 18.10 | 32.70 | 30 | 2.16 | 18.10 | 32.70 | 26.14 | 189 | 0.082 |
| 50 | 16 | 48 | 0.83 | 18.20 | 32.88 | 50 | 0.50 | 18.20 | 32.88 | 26.40 | 164 | 0.117 |
| 75 | 〃 | 72 | -0.14 | 18.24 | 32.95 | 75 | -0.10 | 18.28 | 33.03 | 26.54 | 151 | 0.156 |
| 100 | 〃 | 96 | 0.53 | 18.36 | 33.17 | 100 | 0.55 | 18.32 | 33.10 | 26.62 | 143 | 0.193 |
| 150 | 24 | 137 | 0.66 | 18.36 | 33.17 | 150 | 0.66 | 18.37 | 33.19 | 26.63 | 142 | 0.264 |
| 200 | 〃 | 183 | 0.66 | 18.37 | 33.19 | | | | | | | |

**Station Ho 41**

Date Aug. 7 Time 1810～1855 (S.M.T.) Latitude 47°18′N Longitude 150°41′E
Wind S 2 Weather f Air Temp. 13.9°C Sea S 2 Swell SSE 2 Col. 3 Tr. 14m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 11.2 | 17.75 | 32.07 | 0 | 11.2 | 17.75 | 32.07 | 24.49 | 346 | 0 |
| 10 | 4 | 10 | 10.13 | (17.84) | (32.23) | 10 | 10.13 | 17.84 | 32.23 | 24.79 | 317 | 0.033 |
| 20 | 〃 | 20 | 6.90 | 17.85 | 32.25 | 20 | 6.90 | 17.85 | 32.25 | 25.29 | 269 | 0.062 |
| 30 | 〃 | 30 | 3.67 | 17.95 | 32.43 | 30 | 3.67 | 17.95 | 32.43 | 25.80 | 221 | 0.087 |
| 50 | 14 | 49 | 0.66 | 18.09 | 32.68 | 50 | 0.60 | 18.09 | 32.68 | 26.23 | 180 | 0.127 |
| 75 | 〃 | 73 | -0.70 | 18.28 | 33.03 | 75 | -0.70 | 18.28 | 33.03 | 26.57 | 148 | 0.168 |
| 100 | 〃 | 97 | -0.41 | 18.34 | 33.13 | 100 | -0.27 | 18.34 | 33.13 | 26.64 | 141 | 0.204 |
| 150 | 16 | 144 | -0.27 | 18.39 | 33.22 | 150 | -0.40 | 18.40 | 33.24 | 26.73 | 133 | 0.273 |
| 200 | 〃 | 192 | -0.10 | 18.46 | 33.35 | 200 | 0.00 | 18.44 | 33.31 | 26.77 | 129 | 0.338 |
| 300 | 〃 | 288 | 0.64 | 18.48 | 33.39 | 300 | 0.64 | 18.49 | 33.40 | 26.81 | 125 | 0.464 |
| 400 | 〃 | 385 | 0.90 | 18.54 | 33.50 | 400 | 0.92 | 18.55 | 33.51 | 26.88 | 118 | 0.585 |
| 500 | 38 | 436 | 0.96 | 18.59 | 33.59 | 500 | 1.16 | 18.62 | 33.64 | 26.96 | 111 | 0.700 |
| 600 | 〃 | 530 | (1.25) | (18.64) | (33.68) | 600 | 1.42 | 18.68 | 33.75 | 27.03 | 104 | 0.809 |
| 800 | 〃 | 720 | 1.74 | (18.76) | (33.89) | 800 | 1.90 | 18.82 | 34.00 | 27.20 | 88 | 1.005 |
| 1000 | 〃 | 916 | 2.11 | 18.89 | 34.13 | | | | | | | |

Table 35. (Continued)

**Station Ho 42**

Date Aug. 8 Time 1850～1920 (S.M.T.) Latitude 48°58′N Longitude 152°47′E
Wind SSE 1 Weather f Air Temp. 9.0°C Sea × Swell W 1 Col. 3 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.5 | 18.04 | 32.59 | 0 | 8.5 | 18.04 | 32.59 | 25.33 | 266 | 0 |
| 10 | 6 | 10 | 7.44 | 18.04 | 32.59 | 10 | 7.44 | 18.04 | 32.59 | 25.49 | 250 | 0.026 |
| 20 | 〃 | 20 | 4.81 | 18.04 | 32.59 | 20 | 4.81 | 18.04 | 32.59 | 25.81 | 220 | 0.050 |
| 30 | 〃 | 30 | 2.18 | 18.22 | 32.92 | 30 | 2.18 | 18.22 | 32.92 | 26.32 | 172 | 0.070 |
| 50 | 12 | 49 | 1.65 | 18.28 | 33.03 | 50 | 1.50 | 18.28 | 33.03 | 26.45 | 159 | 0.103 |
| 75 | 〃 | 74 | 1.08 | 18.36 | 33.17 | 75 | 1.08 | 18.36 | 33.17 | 26.60 | 145 | 0.141 |
| 100 | 〃 | 98 | (0.99) | 18.40 | 33.24 | 100 | 0.99 | 18.40 | 33.24 | 26.66 | 139 | 0.177 |
| 150 | 30 | 140 | 1.47 | 18.45 | 33.33 | 150 | 1.43 | 18.45 | 33.33 | 26.70 | 135 | 0.246 |
| 200 | 〃 | 188 | 1.30 | 18.46 | 33.35 | 200 | 1.30 | 18.47 | 33.37 | 26.73 | 133 | 0.314 |
| 300 | 〃 | 284 | 1.42 | 18.51 | 33.44 | 300 | 1.44 | 18.52 | 33.46 | 26.80 | 126 | 0.444 |
| 400 | 〃 | 382 | 1.34 | 18.57 | 33.55 | 400 | 1.28 | 18.58 | 33.57 | 26.89 | 117 | 0.566 |
| 500 | 28 | 472 | 1.26 | 18.61 | 33.62 | 500 | 1.32 | 18.64 | 33.68 | 26.98 | 109 | 0.680 |
| 600 | 〃 | 570 | 1.55 | 18.69 | 33.77 | 600 | 1.67 | 18.74 | 33.86 | 27.10 | 98 | 0.785 |
| 800 | 〃 | 768 | 2.06 | 18.84 | 34.04 | 800 | 2.12 | 18.84 | 34.04 | 27.21 | 87 | 0.975 |
| 1000 | 〃 | 966 | 2.31 | 18.95 | 34.24 | | | | | | | |

**Station Ho 43**

Date Aug. 10 Time 0600～0655 (S.M.T.) Latitude 50°38′N Longitude 153°54′E
Wind SW 3 Weather b Air Temp. 0.8°C Sea SW 4 Swell SW 3 Col. 5 Tr. 15m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 9.6 | 18.05 | 32.61 | 0 | 9.6 | 18.05 | 32.61 | 25.17 | 281 | 0 |
| 10 | 6 | 10 | 9.58 | 18.05 | 32.61 | 10 | 9.58 | 18.05 | 32.61 | 25.18 | 280 | 0.028 |
| 20 | 〃 | 20 | 9.52 | 18.05 | 32.61 | 20 | 9.52 | 18.05 | 32.61 | 25.19 | 279 | 0.056 |
| 30 | 〃 | 30 | 9.43 | 18.06 | 32.63 | 30 | 9.43 | 18.06 | 32.63 | 25.21 | 277 | 0.084 |
| 50 | 8 | 50 | 2.05 | 18.16 | 32.81 | 50 | 2.05 | 18.16 | 32.81 | 26.24 | 179 | 0.130 |
| 75 | 〃 | 75 | 0.85 | (18.25) | (32.97) | 75 | 0.85 | 18.25 | 32.97 | 26.45 | 159 | 0.172 |
| 100 | 〃 | 99 | 1.26 | 18.28 | 33.03 | 100 | 1.26 | 18.30 | 33.06 | 26.50 | 154 | 0.211 |
| 150 | 10 | 148 | 1.16 | 18.39 | 33.22 | 150 | 1.16 | 18.38 | 33.21 | 26.62 | 143 | 0.286 |
| 200 | 〃 | 197 | 1.01 | 18.43 | 33.30 | 200 | 1.01 | 18.44 | 33.31 | 26.71 | 135 | 0.356 |
| 300 | 〃 | 297 | 1.26 | 18.51 | 33.44 | 300 | 1.26 | 18.51 | 33.44 | 26.79 | 127 | 0.487 |
| 400 | 〃 | 395 | 1.30 | 18.54 | 33.50 | 400 | 1.33 | 18.57 | 33.55 | 26.87 | 119 | 0.610 |
| 500 | 17 | 479 | 1.39 | 18.62 | 33.64 | 500 | 1.40 | 18.62 | 33.64 | 26.94 | 113 | 0.727 |
| 600 | 〃 | 573 | 1.42 | 18.66 | 33.71 | | | | | | | |

Table 35. (Continued)

**Station Ho 44**

Date Aug. 10 Time 0905～0920 (S.M.T.) Latitude 50°38′N Longitude 154°23′E
Wind SW 2 Weather b Air Temp. 12.0°C Sea SW 2 Swell SW 2 Col. 6 Tr. 13m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.2 | 18.01 | 32.54 | 0 | 8.2 | 18.01 | 32.54 | 25.33 | 266 | 0 |
| 10 | 4 | 10 | 6.68 | 18.01 | 32.54 | 10 | 6.68 | 18.01 | 32.54 | 25.55 | 245 | 0.026 |
| 20 | 〃 | 20 | 5.98 | 18.05 | 32.61 | 20 | 5.98 | 18.05 | 32.61 | 25.70 | 230 | 0.050 |
| 30 | 〃 | 30 | 3.76 | 18.14 | 32.77 | 30 | 3.76 | 18.14 | 32.77 | 26.06 | 196 | 0.071 |
| 50 | 〃 | 50 | 2.60 | 18.24 | 32.95 | 50 | 2.60 | 18.24 | 32.95 | 26.30 | 173 | 0.108 |
| 75 | 〃 | 75 | 1.83 | 18.28 | 33.03 | 75 | 1.83 | 18.28 | 33.03 | 26.43 | 161 | 0.150 |
| 100 | 〃 | 100 | 1.25 | 18.31 | 33.08 | 100 | 1.25 | 18.31 | 33.08 | 26.51 | 154 | 0.189 |

**Station Ho 45**

Date Aug. 10 Time 1220～1235 (S.M.T.) Latitude 50°47′N Longitude 154°54′E
Wind SW 2 Weather b Air Temp. 10.9°C Sea SSW 2 Swell SSW 2 Col. 6 Tr. 9m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.6 | 18.07 | 32.65 | 0 | 8.6 | 18.07 | 32.65 | 25.36 | 263 | 0 |
| 10 | 20 | 9 | 8.08 | 18.07 | 32.65 | 10 | 8.00 | 18.07 | 32.65 | 25.45 | 254 | 0.026 |
| 20 | 〃 | 19 | 5.56 | 18.11 | 32.72 | 20 | 5.30 | 18.11 | 32.72 | 25.86 | 215 | 0.049 |
| 30 | 〃 | 28 | 2.74 | 18.19 | 32.86 | 30 | 2.55 | 18.19 | 32.86 | 26.24 | 179 | 0.069 |
| 50 | 〃 | 47 | 1.89 | 18.20 | 32.88 | 50 | 1.86 | 18.20 | 32.88 | 26.31 | 173 | 0.104 |
| 75 | 〃 | 71 | 1.67 | 18.20 | 32.88 | 75 | 1.58 | 18.21 | 32.90 | 26.34 | 170 | 0.147 |
| 100 | 〃 | 94 | 1.14 | 18.28 | 33.03 | | | | | | | |

**Station Ho 46**

Date Aug. 10 Time 1530～1550 (S.M.T.) Latitude 51°00′N Longitude 154°30′E
Wind SW 4 Weather c Air Temp. 10.9°C Sea SW 3 Swell SW 3 Col. 5 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Compu ed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.2 | 18.07 | 32.65 | 0 | 8.2 | 18.07 | 32.65 | 25.42 | 257 | 0 |
| 10 | 24 | 9 | 7.99 | 18.07 | 32.65 | 10 | 7.95 | 18.07 | 32.65 | 25.46 | 253 | 0.026 |
| 20 | 〃 | 18 | 7.60 | 18.07 | 32.65 | 20 | 6.90 | 18.07 | 32.65 | 25.60 | 240 | 0.051 |
| 30 | 〃 | 28 | 4.25 | 18.11 | 32.72 | 30 | 3.88 | 18.11 | 32.72 | 26.01 | 201 | 0.073 |
| 50 | 〃 | 46 | 2.71 | 18.17 | 32.83 | 50 | 2.48 | 18.19 | 32.86 | 26.24 | 179 | 0.111 |
| 75 | 〃 | 69 | 1.71 | 18.25 | 32.97 | 75 | 1.57 | 18.27 | 33.01 | 26.43 | 161 | 0.154 |
| 100 | 〃 | 91 | 1.35 | 18.29 | 33.04 | | | | | | | |

Table 35. (Continued)

**Station Ho 47**

Date Aug. 11 Time 2340～2400 (S.M.T.) Latitude 50°55′N Longitude 154°03′E
Wind NW 3 Weather f Air Temp. 9.5°C Sea WNW 3 Swell WNW 3 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 9.4 | 18.04 | 32.59 | 0 | 9.4 | 18.04 | 32.59 | 25.20 | 278 | 0 |
| 10 | 14 | 10 | 9.18 | 18.04 | 32.59 | 10 | 9.18 | 18.04 | 32.59 | 25.23 | 275 | 0.028 |
| 20 | 〃 | 19 | (8.74) | 18.04 | 32.59 | 20 | 8.70 | 18.04 | 32.59 | 25.30 | 268 | 0.055 |
| 30 | 〃 | 29 | 8.00 | 18.12 | 32.74 | 30 | 7.90 | 18.12 | 32.74 | 25.53 | 247 | 0.081 |
| 50 | 20 | 47 | 2.52 | 18.21 | 32.90 | 50 | 2.38 | 18.21 | 32.90 | 26.29 | 174 | 0.123 |
| 75 | 〃 | 71 | 1.58 | 18.27 | 33.01 | 75 | 1.50 | 18.27 | 33.01 | 26.44 | 160 | 0.165 |
| 100 | 〃 | 94 | 1.29 | 18.31 | 33.08 | 100 | 1.24 | 18.31 | 33.08 | 26.51 | 154 | 0.204 |
| 150 | 〃 | 141 | 1.05 | 18.38 | 33.21 | 150 | 1.02 | 18.39 | 33.22 | 26.64 | 141 | 0.278 |
| 200 | 24 | 183 | 1.06 | 18.41 | 33.26 | 200 | 1.08 | 18.42 | 33.28 | 26.68 | 137 | 0.348 |
| 300 | 〃 | 270 | 1.20 | 18.45 | 33.33 | 300 | 1.26 | 18.50 | 33.42 | 26.78 | 128 | 0.481 |
| 400 | 〃 | 364 | 1.46 | 18.53 | 33.48 | 400 | 1.43 | 18.56 | 33.53 | 26.85 | 121 | 0.606 |
| 500 | 〃 | 461 | 1.52 | 18.59 | 33.59 | 500 | 1.59 | 18.62 | 33.64 | 26.93 | 114 | 0.725 |
| 600 | 〃 | 561 | 1.65 | 18.65 | 33.69 | | | | | | | |

**Station Ho 48**

Date Aug. 12 Time 1600～1630 (S.M.T.) Latitude 52°05′N Longitude 154°55′E
Wind NW 4 Weather b Air Temp. 11.5°C Sea NW 5 Swell WNW 4 Col. 4 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 10.3 | 18.10 | 32.70 | 0 | 10.3 | 18.10 | 32.70 | 25.13 | 285 | 0 |
| 10 | 12 | 10 | 10.16 | 18.08 | 32.66 | 10 | 10.16 | 18.08 | 32.66 | 25.12 | 286 | 0.029 |
| 20 | 〃 | 20 | 10.11 | 18.08 | 32.66 | 20 | 10.11 | 18.08 | 32.66 | 25.13 | 285 | 0.058 |
| 30 | 〃 | 29 | 5.12 | 18.18 | 32.85 | 30 | 5.05 | 18.18 | 32.85 | 25.99 | 203 | 0.082 |
| 50 | 〃 | 49 | 1.80 | 18.22 | 32.92 | 50 | 1.80 | 18.22 | 32.92 | 26.34 | 170 | 0.119 |
| 75 | 〃 | 68 | 1.30 | 18.24 | 32.95 | 75 | 1.14 | 18.24 | 32.95 | 26.42 | 162 | 0.161 |
| 100 | 26 | 90 | 0.90 | 18.25 | 32.97 | 100 | 0.80 | 18.27 | 33.01 | 26.49 | 155 | 0.201 |
| 150 | 〃 | 135 | 0.61 | 18.30 | 33.06 | 150 | 0.62 | 18.31 | 33.08 | 26.55 | 150 | 0.277 |
| 200 | 〃 | 180 | 0.76 | 18.34 | 33.13 | 200 | 0.83 | 18.36 | 33.17 | 26.61 | 144 | 0.350 |
| 300 | 〃 | 280 | 1.23 | 18.46 | 33.35 | | | | | | | |

Table 35. (Continued)

**Station Ho 49**

Date Aug. 13 Time 1935～1950 (S.M.T.) Latitude 52°36′N Longitude155°43′E
Wind NN 3 Weather c Air Temp. 9.8°C Sea NW 2 Swell × Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 10.8 | 17.45 | 31.53 | 0 | 10.8 | 17.45 | 31.53 | 24.12 | 381 | 0 |
| 10 | 10 | 10 | 10.71 | 17.45 | 31.53 | 10 | 10.71 | 17.45 | 31.53 | 24.14 | 379 | 0.038 |
| 20 | 〃 | 20 | 3.55 | 18.08 | 32.66 | 20 | 3.55 | 18.08 | 32.66 | 26.00 | 202 | 0.067 |
| 30 | 〃 | 30 | 3.38 | 18.06 | 32.63 | 30 | 3.38 | 18.06 | 32.63 | 25.98 | 204 | 0.087 |
| 50 | 〃 | 49 | 3.05 | 18.11 | 32.72 | 50 | 3.05 | 18.11 | 32.72 | 26.09 | 193 | 0.127 |

**Station Ho 50**

Date Aug. 14 Time 2105～2130 (S.M.T.) Latitude 53°33′N Longitude 155°23′E
Wind N 3 Weather bc Air Temp. 11.0°C Sea N 3 Swell N 2 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 12.0 | 17.46 | 31.55 | 0 | 12.0 | 17.46 | 31.55 | 23.93 | 399 | 0 |
| 10 | 14 | 10 | 12.03 | (17.74) | (32.05) | 10 | 12.03 | 17.74 | 32.05 | 24.32 | 362 | 0.038 |
| 20 | 〃 | 19 | 5.15 | 17.99 | 32.50 | 20 | 5.00 | 17.99 | 32.50 | 25.72 | 229 | 0.068 |
| 30 | 〃 | 29 | 1.78 | 18.10 | 32.70 | 30 | 1.70 | 18.10 | 32.70 | 26.18 | 185 | 0.089 |
| 50 | 〃 | 49 | 1.36 | 18.13 | 32.76 | 50 | 1.36 | 18.13 | 32.76 | 26.24 | 179 | 0.125 |

**Station Ho 51**

Date Aug. 15 Time 0900～0920 (S.M.T.) Latitude 54°52′N Longitude 154°57′E
Wind NNW 2 Weather bc Air Temp. 12.5°C Sea NNW 2 Swell NW 1 Col. 3 Tr. 13m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 12.0 | 17.95 | 32.43 | 0 | 12.0 | 17.95 | 32.43 | 24.62 | 333 | 0 |
| 10 | 6 | 10 | 11.63 | 17.90 | 32.34 | 10 | 11.63 | 17.90 | 32.34 | 24.62 | 333 | 0.033 |
| 20 | 〃 | 20 | 7.49 | 18.03 | 32.57 | 20 | 7.49 | 18.03 | 32.57 | 25.47 | 252 | 0.062 |
| 30 | 〃 | 30 | 3.60 | 18.04 | 32.59 | 30 | 3.60 | 18.04 | 32.59 | 25.93 | 209 | 0.085 |
| 50 | 〃 | 50 | 0.92 | 18.04 | 32.59 | 50 | 0.92 | 18.04 | 32.59 | 26.14 | 189 | 0.125 |
| 75 | 〃 | 75 | 0.08 | 18.03 | 32.57 | 75 | 0.08 | 18.04 | 32.59 | 26.19 | 184 | 0.172 |

Table 35. (Continued)

**Station Ho 52**

Date Aug. 15 Time 1900～1930 (S.M.T.) Latitude 56°10′N Longitude 154°07′E
Wind N 1 Weather c Air Temp. 12.2°C Sea N 2 Swell NNW 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 11.9 | 18.05 | 32.61 | 0 | 11.9 | 18.05 | 32.61 | 24.78 | 318 | 0 |
| 10 | 6 | 10 | 11.44 | 18.06 | 32.63 | 10 | 11.44 | 18.06 | 32.63 | 24.87 | 309 | 0.031 |
| 20 | 〃 | 20 | 7.38 | 18.15 | 32.79 | 20 | 7.38 | 18.15 | 32.79 | 25.64 | 236 | 0.058 |
| 30 | 〃 | 30 | 2.88 | 18.20 | 32.88 | 30 | 2.88 | 18.20 | 32.88 | 26.23 | 180 | 0.079 |
| 50 | 〃 | 50 | 0.37 | 18.25 | 32.97 | 50 | 0.37 | 18.25 | 32.97 | 26.48 | 156 | 0.113 |
| 75 | 〃 | 75 | -0.13 | (18.30) | (33.06) | 75 | -0.13 | 18.30 | 33.06 | 26.57 | 148 | 0.151 |
| 100 | 〃 | 99 | -0.22 | 18.30 | 33.06 | 100 | -0.22 | 18.32 | 33.10 | 26.61 | 144 | 0.188 |
| 150 | 8 | 149 | 0.19 | 18.38 | 33.21 | 150 | 0.20 | 18.38 | 33.21 | 26.68 | 137 | 0.258 |
| 200 | 〃 | 198 | 1.03 | 18.44 | 33.31 | 200 | 1.03 | 18.44 | 33.31 | 26.71 | 135 | 0.326 |
| 300 | 〃 | 298 | 1.19 | 18.50 | 33.42 | 300 | 1.18 | 18.50 | 33.42 | 26.79 | 127 | 0.457 |
| 400 | 〃 | 398 | 1.04 | 18.53 | 33.48 | 400 | 1.08 | 18.53 | 33.48 | 26.83 | 123 | 0.582 |
| 500 | 〃 | 497 | 1.07 | 18.59 | 33.59 | 500 | 1.00 | 18.58 | 33.57 | 26.91 | 116 | 0.702 |
| 600 | 〃 | 595 | 0.86 | 18.60 | 33.60 | | | | | | | |

**Station Ho 53**

Date Aug. 16 Time 0605～0650 (S.M.T.) Latitude 57°33′N Longitude 153°11′E
Wind NW 1 Weather b Air Temp. 12.0°C Sea NW 1 Swell NW 1 Col. 3 Tr. 16m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 12.4 | 18.03 | 32.57 | 0 | 12.4 | 18.03 | 32.57 | 24.65 | 330 | 0 |
| 10 | 6 | 10 | 11.98 | 18.05 | 32.61 | 10 | 11.98 | 18.05 | 32.61 | 24.76 | 320 | 0.033 |
| 20 | 〃 | 20 | 10.21 | 18.10 | 32.70 | 20 | 10.21 | 18.10 | 32.70 | 25.14 | 284 | 0.063 |
| 30 | 〃 | 30 | 2.12 | 18.13 | 32.76 | 30 | 2.12 | 18.13 | 32.76 | 26.19 | 184 | 0.086 |
| 50 | 〃 | 50 | 0.61 | 18.20 | 32.88 | 50 | 0.61 | 18.20 | 32.88 | 26.39 | 165 | 0.121 |
| 75 | 〃 | 75 | -0.34 | 18.25 | 32.97 | 75 | -0.34 | 18.25 | 32.97 | 26.51 | 154 | 0.161 |
| 100 | 14 | 97 | -0.01 | 18.30 | 33.06 | 100 | 0.00 | 18.30 | 33.06 | 26.56 | 149 | 0.199 |
| 150 | 〃 | 146 | 0.52 | 18.37 | 33.19 | 150 | 0.52 | 18.37 | 33.19 | 26.64 | 141 | 0.272 |
| 200 | 〃 | 194 | 0.63 | 18.40 | 33.24 | 200 | 0.63 | 18.40 | 33.24 | 26.68 | 137 | 0.342 |
| 300 | 〃 | 294 | 0.71 | 18.49 | 33.40 | | | | | | | |

Table 35. (Continued)

**Station Ho 54**

Date Aug. 16 Time 1650～1710 (S.M.T.) Latitude 58°33′N Longitude 152°19′E
Wind W 3 Weather c Air Temp. 9.5°C Sea W 3 Swell W 2 Col. 4 Tr. 10m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 8.8 | 17.96 | 32.45 | 0 | 8.8 | 17.96 | 32.45 | 25.18 | 280 | 0 |
| 10 | 12 | 10 | 8.62 | 17.96 | 32.45 | 10 | 8.62 | 17.96 | 32.45 | 25.20 | 278 | 0.028 |
| 20 | 〃 | 20 | 3.15 | 17.99 | 32.50 | 20 | 3.15 | 17.99 | 32.50 | 25.90 | 211 | 0.052 |
| 30 | 〃 | 29 | 1.72 | 18.18 | 32.85 | 30 | 1.72 | 18.18 | 32.85 | 26.29 | 174 | 0.071 |
| 50 | 〃 | 49 | 1.28 | 18.27 | 33.01 | 50 | 1.26 | 18.27 | 33.01 | 26.45 | 159 | 0.104 |
| 75 | 〃 | 74 | (0.86) | 18.30 | 33.06 | 75 | 0.84 | 18.30 | 33.06 | 26.53 | 152 | 0.143 |
| 100 | 〃 | 98 | 0.49 | 18.32 | 33.10 | 100 | 0.49 | 18.32 | 33.10 | 26.57 | 148 | 0.181 |

**Station Ho 55**

Date Aug. 17 Time 1800～1830 (S.M.T.) Latitude 56°51′N Longitude 151°55′E
Wind SSW 3 Weather c Air Temp. 12.0°C Sea WSW 3 Swell WSW 2 Col. 3 Tr. 10m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 13.0 | 18.00 | 32.52 | 0 | 13.0 | 18.00 | 32.52 | 24.50 | 345 | 0 |
| 10 | 16 | 10 | 12.87 | 18.00 | 32.52 | 10 | 12.87 | 18.00 | 32.52 | 24.52 | 343 | 0.034 |
| 20 | 〃 | 19 | 6.86 | 18.16 | 32.81 | 20 | 6.50 | 18.16 | 32.81 | 25.78 | 223 | 0.062 |
| 30 | 〃 | 29 | 2.96 | 18.19 | 32.86 | 30 | 2.90 | 18.19 | 32.86 | 26.21 | 182 | 0.082 |
| 50 | 28 | 44 | 1.19 | (18.22) | (32.92) | 50 | 0.90 | 18.24 | 32.95 | 26.43 | 161 | 0.116 |
| 75 | 〃 | 66 | 0.31 | (18.26) | (32.99) | 75 | 0.22 | 18.28 | 33.03 | 26.52 | 153 | 0.155 |
| 100 | 〃 | 88 | 0.18 | 18.29 | 33.04 | 100 | 0.23 | 18.31 | 33.08 | 26.57 | 148 | 0.193 |
| 150 | 40 | 115 | 0.33 | 18.31 | 33.08 | 150 | 0.52 | 18.36 | 33.17 | 26.63 | 142 | 0.266 |
| 200 | 〃 | 160 | 0.58 | (18.37) | (33.19) | 200 | 0.82 | 18.41 | 33.26 | 26.68 | 137 | 0.336 |
| 300 | 〃 | 243 | 1.08 | 18.45 | 33.33 | 300 | 1.07 | 18.48 | 33.39 | 26.82 | 124 | 0.466 |
| 400 | 〃 | 329 | 1.07 | 18.50 | 33.42 | | | | | | | |

Table 35. (Continued)

**Station Ho 56**

Date Aug. 18 Time 0630～0655 (S.M.T.) Latitude 54°56′N Longitude 151°55′E

Wind WSW 3 Weather b Air Temp. 12.8°C Sea WSW 3 Swell WSW 2 Col. 3 Tr. 14m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 12.8 | | | 0 | 12.8 | | | | | |
| 10 | 4 | 10 | 12.62 | | | 10 | 12.62 | | | | | |
| 20 | 〃 | 20 | 12.44 | | | 20 | 12.44 | | | | | |
| 30 | 〃 | 30 | 7.64 | | | 30 | 7.64 | | | | | |
| 50 | 〃 | 50 | 1.59 | | | 50 | 1.59 | | | | | |
| 75 | 12 | 74 | -0.27 | | | 75 | -0.27 | | | | | |
| 100 | 〃 | 98 | 0.07 | | | 100 | 0.08 | | | | | |
| 150 | 〃 | 147 | 0.52 | | | 150 | 0.61 | | | | | |
| 200 | 〃 | 196 | 1.16 | | | | | | | | | |

**Station Ho 57**

Date Aug. 18 Time 1800～1848 (S.M.T.) Latitude 53°13′N Longitude 152°19′E

Wind SW 2 Weather f Air Temp. 10.2°C Sea WSW 2 Swell WSW 1 Col. 3 Tr. 15m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 12.0 | 18.08 | 32.66 | 0 | 12.0 | 18.08 | 32.66 | 24.80 | 316 | 0 |
| 10 | 4 | 10 | 11.04 | 18.08 | 32.66 | 10 | 11.04 | 18.08 | 32.66 | 24.97 | 300 | 0.031 |
| 20 | 〃 | 20 | 5.32 | 18.23 | 32.94 | 20 | 5.32 | 18.23 | 32.94 | 26.03 | 199 | 0.056 |
| 30 | 〃 | 30 | 2.25 | 18.23 | 32.94 | 30 | 2.25 | 18.23 | 32.94 | 26.32 | 172 | 0.075 |
| 50 | 〃 | 50 | 1.27 | 18.24 | 32.95 | 50 | 1.27 | 18.24 | 32.95 | 26.41 | 163 | 0.109 |
| 75 | 〃 | 75 | 0.93 | 18.28 | 33.03 | 75 | 0.93 | 18.28 | 33.03 | 26.49 | 155 | 0.149 |
| 100 | 〃 | 100 | 0.60 | 18.29 | 33.04 | 100 | 0.60 | 18.29 | 33.04 | 26.52 | 153 | 0.188 |
| 150 | 〃 | 150 | 0.55 | 18.32 | 33.10 | 150 | 0.55 | 18.32 | 33.10 | 26.57 | 148 | 0.263 |
| 200 | 〃 | 200 | 0.79 | 18.39 | 33.22 | 200 | 0.79 | 18.39 | 33.22 | 26.66 | 139 | 0.335 |
| 300 | 〃 | 298 | 1.36 | 18.47 | 33.37 | 300 | 1.38 | 18.47 | 33.37 | 26.73 | 133 | 0.471 |
| 400 | 〃 | 397 | 1.54 | 18.50 | 33.42 | 400 | 1.58 | 18.54 | 33.50 | 26.82 | 124 | 0.600 |
| 500 | 〃 | 496 | 1.55 | 18.61 | 33.62 | 500 | 1.72 | 18.61 | 33.62 | 26.91 | 116 | 0.721 |
| 600 | 〃 | 595 | 1.81 | 18.72 | 33.82 | | | | | | | |

Table 35. (Continued)

**Station Ho 58**

Date Aug. 19 Time 0630～0708 (S.M.T.) Latitude 51°34′N Longitude 153°18′E
Wind WNW 2 Wetaher f Air Temp. 10.1°C Sea WNW 2 Swell WNW 1 Col. 4 Tr. 11m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\triangle$st (cl/ton) | $\triangle$D (dyn.m) |
| 0 | | 0 | 11.6 | 18.03 | 32.57 | 0 | 11.6 | 18.03 | 32.57 | 24.80 | 316 | 0 |
| 10 | 22 | 9 | 10.46 | 18.05 | 32.61 | 10 | 10.40 | 18.05 | 32.61 | 25.03 | 294 | 0.031 |
| 20 | 〃 | 18 | 7.32 | 18.08 | 32.66 | 20 | 6.50 | 18.08 | 32.66 | 25.66 | 234 | 0.057 |
| 30 | 〃 | 28 | 3.89 | 18.16 | 32.81 | 30 | 3.40 | 18.16 | 32.81 | 26.12 | 191 | 0.078 |
| 50 | 〃 | 46 | 1.70 | 18.25 | 32.97 | 50 | 1.50 | 18.25 | 32.97 | 26.41 | 163 | 0.113 |
| 75 | 〃 | 70 | 0.97 | 18.30 | 33.06 | 75 | 0.92 | 18.30 | 33.06 | 26.52 | 153 | 0.153 |
| 100 | 〃 | 93 | (0.84) | (18.31) | (33.08) | 100 | 0.80 | 18.32 | 33.10 | 26.56 | 149 | 0.191 |
| 150 | 40 | 128 | 0.75 | 18.33 | 33.12 | 150 | 0.71 | 18.36 | 33.17 | 26.61 | 144 | 0.264 |
| 200 | 〃 | 174 | 0.69 | 18.37 | 33.19 | 200 | 0.80 | 18.40 | 33.24 | 26.67 | 138 | 0.334 |
| 300 | 〃 | 267 | 1.18 | 18.46 | 33.35 | 300 | 1.29 | 18.48 | 33.39 | 26.75 | 131 | 0.468 |
| 400 | 〃 | 361 | 1.44 | 18.52 | 33.46 | 400 | 1.53 | 18.55 | 33.51 | 26.84 | 122 | 0.595 |
| 500 | 〃 | 460 | 1.53 | 18.59 | 33.59 | 500 | 1.67 | 18.62 | 33.64 | 26.92 | 115 | 0.715 |
| 600 | 〃 | 558 | 1.72 | 18.68 | 33.75 | | | | | | | |

**Station Ho 59**

Date Aug. 19 Time 1807～1850 (S.M.T.) Latitude 50°25′N Longitude 154°25′E
Wind NW 2 Weather f Air Temp. 9.8°C Sea WNW 2 Swell WNW 1 Col. 4 Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\triangle$st (cl/ton) | $\triangle$D (dyn.m) |
| 0 | | 0 | 9.5 | 18.03 | 32.57 | 0 | 9.5 | 18.03 | 32.57 | 25.16 | 282 | 0 |
| 10 | 10 | 10 | 8.70 | 18.03 | 32.57 | 10 | 8.70 | 18.03 | 32.57 | 25.29 | 269 | 0.028 |
| 20 | 〃 | 20 | 6.37 | 18.18 | 32.85 | 20 | 6.37 | 18.18 | 32.85 | 25.82 | 219 | 0.052 |
| 30 | 〃 | 30 | 4.29 | 18.23 | 32.94 | 30 | 4.29 | 18.23 | 32.94 | 26.13 | 190 | 0.072 |
| 50 | 〃 | 49 | 1.71 | 18.29 | 33.04 | 50 | 1.70 | 18.29 | 33.04 | 26.45 | 159 | 0.107 |
| 75 | 〃 | 74 | 1.52 | 18.35 | 33.15 | 75 | 1.52 | 18.35 | 33.15 | 26.55 | 150 | 0.146 |
| 100 | 〃 | 98 | 1.52 | 18.37 | 33.19 | 100 | 1.52 | 18.37 | 33.19 | 26.58 | 147 | 0.183 |
| 150 | 〃 | 148 | 1.39 | 18.40 | 33.24 | 150 | 1.39 | 18.40 | 33.24 | 26.63 | 142 | 0.256 |
| 200 | 16 | 196 | 1.34 | 18.41 | 33.26 | 200 | 1.34 | 18.41 | 33.26 | 26.65 | 140 | 0.327 |
| 300 | 〃 | 296 | (1.35) | 18.47 | 33.37 | 300 | 1.36 | 18.47 | 33.37 | 26.73 | 133 | 0.464 |
| 400 | 〃 | 395 | 1.41 | 18.53 | 33.48 | 400 | 1.40 | 18.53 | 33.48 | 26.81 | 125 | 0.594 |
| 500 | 〃 | 494 | 1.45 | 18.58 | 33.57 | 500 | 1.45 | 18.58 | 33.57 | 26.88 | 118 | 0.717 |
| 600 | 〃 | 593 | 1.52 | 18.66 | 33.71 | 600 | 1.52 | 18.66 | 33.71 | 26.99 | 108 | 0.831 |

Table 35. (Continued)

**Station Ho 60**

Date Aug. 20 Time 1830～1925 (S.M.T.) Latitude 49°24′N Longitude 152°15′E
Wind W 3 Weather c Air Temp. 10.0°C Sea WNW 3 Swell NW 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 9.6 | 18.04 | 32.59 | 0 | 9.6 | 18.04 | 32.59 | 25.16 | 282 | 0 |
| 10 | 6 | 10 | 9.43 | 18.04 | 32.59 | 10 | 9.43 | 18.04 | 32.59 | 25.19 | 279 | 0.028 |
| 20 | 〃 | 20 | 7.54 | 18.09 | 32.68 | 20 | 7.54 | 18.09 | 32.68 | 25.54 | 246 | 0.054 |
| 30 | 〃 | 30 | 4.89 | 18.14 | 32.77 | 30 | 4.89 | 18.14 | 32.77 | 25.95 | 207 | 0.077 |
| 50 | 10 | 49 | 2.61 | 18.19 | 32.86 | 50 | 2.10 | 18.22 | 32.92 | 26.32 | 172 | 0.115 |
| 75 | 〃 | 74 | 0.92 | 18.31 | 33.08 | 75 | 0.95 | 18.32 | 33.10 | 26.55 | 150 | 0.155 |
| 100 | 〃 | 98 | 1.03 | 18.37 | 33.19 | 100 | 1.08 | 18.37 | 33.19 | 26.61 | 144 | 0.192 |
| 150 | 40 | 115 | 1.37 | 18.43 | 33.30 | 150 | 1.41 | 18.44 | 33.31 | 26.69 | 136 | 0.262 |
| 200 | 〃 | 153 | 1.41 | 18.44 | 33.31 | 200 | 1.42 | 18.47 | 33.37 | 26.72 | 134 | 0.330 |
| 300 | 〃 | 245 | 1.43 | 18.49 | 33.40 | 300 | 1.47 | 18.53 | 33.48 | 26.81 | 125 | 0.460 |
| 400 | 〃 | 338 | 1.35 | 18.55 | 33.51 | 400 | 1.47 | 18.60 | 33.60 | 26.91 | 116 | 0.581 |
| 500 | 30 | 468 | 1.41 | 18.64 | 33.68 | 500 | 1.50 | 18.67 | 33.73 | 27.01 | 106 | 0.693 |
| 600 | 〃 | 565 | 1.64 | 18.72 | 33.82 | | | | | | | |

**Station Ho 61**

Date Aug. 21 Time 0630～0725 (S.M.T.) Latitude 48°28′N Longitude 150°12′E
Wind SW 3 Weather f Air Temp. 11.5°C Sea SW 2 Swell SW 1 Col. 5 Tr. 11m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | △st (cl/ton) | △D (dyn.m) |
| 0 | | 0 | 10.8 | 17.85 | 32.25 | 0 | 10.8 | 17.85 | 32.25 | 24.69 | 327 | 0 |
| 10 | 20 | 9 | 10.25 | 17.86 | 32.27 | 10 | 10.00 | 17.86 | 32.27 | 24.84 | 312 | 0.032 |
| 20 | 〃 | 19 | 7.27 | 17.91 | 32.36 | 20 | 6.50 | 17.94 | 32.41 | 25.47 | 252 | 0.060 |
| 30 | 〃 | 28 | 3.32 | 18.05 | 32.61 | 30 | 2.85 | 18.08 | 32.66 | 26.05 | 197 | 0.082 |
| 50 | 〃 | 47 | 1.69 | 18.25 | 32.97 | 50 | 1.42 | 18.26 | 32.99 | 26.43 | 161 | 0.118 |
| 75 | 〃 | 71 | 1.40 | 18.30 | 33.06 | 75 | 1.30 | 18.32 | 33.10 | 26.53 | 152 | 0.157 |
| 100 | 34 | 83 | 1.01 | 18.33 | 33.12 | 100 | 0.99 | 18.36 | 33.17 | 26.61 | 144 | 0.194 |
| 150 | 〃 | 124 | 1.02 | 18.40 | 33.24 | 150 | 1.03 | 18.42 | 33.28 | 26.69 | 136 | 0.264 |
| 200 | 〃 | 166 | 1.08 | 18.43 | 33.30 | 200 | 1.17 | 18.44 | 33.31 | 26.70 | 135 | 0.332 |
| 300 | 〃 | 250 | 1.31 | 18.45 | 33.33 | 300 | 1.35 | 18.49 | 33.40 | 26.76 | 130 | 0.465 |
| 400 | 〃 | 337 | 1.46 | 18.49 | 33.40 | 400 | 1.48 | 18.52 | 33.46 | 26.80 | 126 | 0.594 |
| 500 | 40 | 417 | 1.49 | 18.52 | 33.46 | 500 | 1.60 | 18.54 | 33.50 | 26.81 | 125 | 0.721 |
| 600 | 〃 | 509 | 1.61 | 18.55 | 33.51 | | | | | | | |

Table 35. (Continued)

**Station Ho 62**

Date Aug. 21 Time 1830～1915 (S.M.T.) Latitude 47°17′N Longitude 148°06′E
Wind SSW 1 Weather bc Air Temp. 14.6°C Sea SSW 1 Swell SSW 1 Col. × Tr. ×

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 16.0 | 17.70 | 31.98 | 0 | 16.0 | 17.70 | 31.98 | 23.45 | 445 | 0 |
| 10 | 4 | 10 | 12.30 | 17.88 | 32.30 | 10 | 12.30 | 17.88 | 32.30 | 24.47 | 348 | 0.040 |
| 20 | 〃 | 20 | 6.07 | 18.07 | 32.65 | 20 | 6.07 | 18.07 | 32.65 | 25.71 | 230 | 0.069 |
| 30 | 〃 | 30 | (4.50) | 18.08 | 32.66 | 30 | 4.50 | 18.08 | 32.66 | 25.90 | 211 | 0.091 |
| 50 | 〃 | 50 | 2.89 | 18.25 | 32.97 | 50 | 2.89 | 18.25 | 32.97 | 26.30 | 173 | 0.129 |
| 75 | 〃 | 75 | 1.57 | 18.29 | 33.04 | 75 | 1.57 | 18.29 | 33.04 | 26.46 | 158 | 0.170 |
| 100 | 〃 | 100 | 0.65 | 18.33 | 33.12 | 100 | 0.65 | 18.33 | 33.12 | 26.58 | 147 | 0.208 |
| 150 | 9 | 148 | 1.00 | 18.42 | 33.28 | 150 | 1.00 | 18.42 | 33.28 | 26.69 | 136 | 0.279 |
| 200 | 〃 | 197 | 0.50 | 18.44 | 33.31 | 200 | 0.51 | 18.44 | 33.31 | 26.74 | 132 | 0.346 |
| 300 | 〃 | 297 | 0.65 | 18.48 | 33.39 | 300 | 0.65 | 18.49 | 33.40 | 26.80 | 126 | 0.475 |
| 400 | 〃 | 396 | 0.91 | 18.53 | 33.48 | 400 | 0.90 | 18.53 | 33.48 | 26.84 | 122 | 0.599 |
| 500 | 〃 | — | — | — | — | 500 | 1.02 | 18.60 | 33.60 | 26.94 | 113 | 0.717 |
| 600 | 〃 | 594 | 1.14 | 18.63 | 33.66 | 600 | 1.22 | 18.65 | 33.69 | 27.00 | 107 | 0.828 |
| 800 | 〃 | 794 | 1.69 | 18.78 | 33.93 | 800 | 1.70 | 18.78 | 33.93 | 27.15 | 93 | 1.032 |
| 1000 | 〃 | 997 | 2.07 | 18.88 | 34.11 | | | | | | | |

**Station Ho 63**

Date Aug. 22 Time 0630～0710 (S.M.T.) Latitude 46°25′N Longitude 146°00′E
Wind E 2 Weather c Air Temp. 15.7°C Sea E 2 Swell E 1 Col. 4 Tr. 15m

| Wire length (m) | Wire angle (°) | Observed | | | | Interpolated | | | | Computed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | T (°C) | Cl (‰) | S (‰) | Depth (m) | T (°C) | Cl (‰) | S (‰) | $\sigma_t$ (g/L) | $\Delta$st (cl/ton) | $\Delta$D (dyn.m) |
| 0 | | 0 | 16.5 | 17.94 | 32.41 | 0 | 16.5 | 17.94 | 32.41 | 23.67 | 424 | 0 |
| 10 | 4 | 10 | 14.82 | 17.88 | 32.30 | 10 | 14.82 | 17.88 | 32.30 | 23.95 | 397 | 0.041 |
| 20 | 〃 | 20 | 3.14 | 18.14 | 32.77 | 20 | 3.14 | 18.14 | 32.77 | 26.11 | 192 | 0.070 |
| 30 | 〃 | 30 | 1.86 | 18.16 | 32.81 | 30 | 1.86 | 18.16 | 32.81 | 26.25 | 178 | 0.089 |
| 50 | 6 | 50 | 0.99 | 18.18 | 32.85 | 50 | 0.99 | 18.18 | 32.85 | 26.34 | 170 | 0.124 |
| 75 | 〃 | 75 | (0.00) | 18.21 | 32.90 | 75 | 0.00 | 18.21 | 32.90 | 26.43 | 161 | 0.165 |
| 100 | 〃 | 99 | -0.33 | 18.23 | 32.94 | 100 | -0.33 | 18.23 | 32.94 | 26.48 | 156 | 0.205 |
| 150 | 16 | 148 | 0.60 | 18.32 | 33.10 | 150 | 0.55 | 18.32 | 33.10 | 26.57 | 148 | 0.281 |
| 200 | 〃 | 197 | 0.46 | 18.36 | 33.17 | 200 | 0.46 | 18.36 | 33.17 | 26.63 | 142 | 0.353 |
| 300 | 〃 | 296 | 0.28 | (18.42) | (33.28) | 300 | 0.28 | 18.42 | 33.28 | 26.73 | 133 | 0.490 |
| 400 | 〃 | 395 | 0.24 | 18.47 | 33.37 | 400 | 0.24 | 18.47 | 33.37 | 26.80 | 126 | 0.619 |
| 500 | 20 | 479 | 0.11 | 18.51 | 33.44 | 500 | 0.11 | 18.51 | 33.44 | 26.86 | 120 | 0.741 |
| 600 | 〃 | 575 | 0.41 | 18.56 | 33.53 | 600 | 0.51 | 18.59 | 33.59 | 26.96 | 111 | 0.856 |
| 800 | 〃 | 766 | 0.96 | 18.65 | 33.69 | | | | | | | |

## 6. Data on Dissolved Oxygen, Phosphate, Silicate and Nitrite

(酸素，燐酸塩，硅酸塩及亜硝酸塩記録)

Measurement of dissolved oxygen, phosphate and silicate was performed at 21 stations from Ho 39 to Ho 63, except Ho 44, Ho 46, Ho 47 and Ho 50.

Measurement of nitrite was performed at three stations; Ho 49, Ho 61 and Ho 63.

Sample water was collected from all regular depths from the surface to about 300 m.

Content of dissolved oxygen was measured by ordinary Winkler method aboard the ship.

Content of phosphate, silicate and nitrite was measured aboard the ship by means of Photoelectric Spectrometer Model 7-A manufactured by Tokyo Photo-Electric Laboratory Co., Ltd.

Measurement aboard and data processing were by M. Oguro.

Table 36. Data on dissolved oxygen, phosphate, silicate and nitrite in the "Hokusei Maru" cruise 8-(4) to the Okhotsk Sea in August 1960

**Station Ho 39**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 5.98 | 0.69 | 19 |
| 10 | 6 | 10 | 6.14 | 0.38 | 15 |
| 20 | 〃 | 20 | 8.91 | 0.44 | 26 |
| 30 | 〃 | 30 | 7.79 | 1.04 | 27 |
| 50 | 8 | 50 | 7.28 | 1.23 | 28 |
| 75 | 〃 | 75 | 7.12 | 1.37 | 29 |
| 100 | 〃 | 99 | 6.95 | 1.42 | 36 |
| 150 | 12 | 147 | 6.42 | 1.39 | 37 |
| 200 | 〃 | 196 | 6.08 | 1.50 | 42 |
| 300 | 〃 | 293 | 5.21 | 1.70 | 43 |

**Station Ho 40**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.65 | 0.50 | 18 |
| 10 | 8 | 10 | 6.53 | 0.55 | 9 |
| 20 | 〃 | 20 | 8.45 | 0.70 | 9 |
| 30 | 〃 | 30 | 7.85 | 1.28 | 11 |
| 50 | 16 | 48 | 7.03 | 1.47 | 30 |
| 75 | 〃 | 72 | 6.83 | 1.50 | 27 |
| 100 | 〃 | 96 | 6.35 | 1.66 | 34 |
| 150 | 24 | 137 | 6.27 | 1.76 | 47 |
| 200 | 〃 | 183 | 6.19 | 1.70 | 41 |

Table 36. (Continued)

**Station Ho 41**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.44 | 0.56 | 18 |
| 10 | 4 | 10 | 7.99 | 0.40 | 9 |
| 20 | 〃 | 20 | 7.60 | 0.65 | 27 |
| 30 | 〃 | 30 | 8.18 | 0.87 | 18 |
| 50 | 14 | 49 | 7.68 | 1.04 | 38 |
| 75 | 〃 | 73 | 7.20 | 1.39 | 33 |
| 100 | 〃 | 97 | 6.90 | 1.45 | 33 |
| 150 | 16 | 144 | 6.74 | 1.48 | 34 |
| 200 | 〃 | 192 | 6.36 | 1.55 | 37 |
| 300 | 〃 | 288 | 5.02 | 1.91 | 53 |

**Station Ho 42**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.21 | 0.76 | 20 |
| 10 | 6 | 10 | 7.54 | 0.71 | 15 |
| 20 | 〃 | 20 | 7.93 | 0.89 | 25 |
| 30 | 〃 | 30 | 7.70 | 1.33 | 25 |
| 50 | 12 | 49 | 6.95 | 1.58 | 32 |
| 75 | 〃 | 74 | 6.61 | 1.83 | 41 |
| 100 | 〃 | 98 | 6.74 | 1.87 | 43 |
| 150 | 30 | 140 | 5.81 | 1.93 | 44 |
| 200 | 〃 | 188 | 5.71 | 1.94 | 50 |
| 300 | 〃 | 284 | 4.81 | 1.97 | 54 |

**Station Ho 43**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.90 | 0.44 | 15 |
| 10 | 6 | 10 | 6.67 | 0.53 | 20 |
| 20 | 〃 | 20 | 6.68 | 0.67 | 23 |
| 30 | 〃 | 30 | 6.97 | 0.69 | 11 |
| 50 | 8 | 50 | 8.03 | 1.37 | 20 |
| 75 | 〃 | 75 | 8.11 | 1.48 | 12 |
| 100 | 〃 | 99 | 7.39 | 1.77 | 40 |
| 150 | 10 | 148 | 6.25 | 2.12 | 46 |
| 200 | 〃 | 197 | 6.01 | 2.10 | 50 |
| 300 | 〃 | 297 | 5.16 | 1.87 | 46 |

**Station Ho 45**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.72 | 0.75 | 20 |
| 10 | 20 | 9 | 7.67 | 0.85 | 21 |
| 20 | 〃 | 19 | 7.76 | 1.14 | 23 |
| 30 | 〃 | 28 | 7.42 | 1.51 | 21 |
| 50 | 〃 | 47 | 7.28 | 1.78 | 32 |
| 75 | 〃 | 71 | 7.23 | 1.91 | 36 |
| 100 | 〃 | 94 | 7.22 | 1.94 | 33 |

Table 36. (Continued)

**Station Ho 48**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.72 | 0.53 | 16 |
| 10 | 12 | 10 | 6.65 | 0.58 | 18 |
| 20 | 〃 | 20 | 6.73 | 0.62 | 14 |
| 30 | 〃 | 29 | 8.56 | 0.64 | 13 |
| 50 | 〃 | 49 | 7.59 | 1.63 | 26 |
| 75 | 〃 | 68 | 7.69 | 1.75 | 30 |
| 100 | 26 | 90 | 7.13 | 2.01 | 36 |
| 150 | 〃 | 135 | 6.98 | 2.06 | 38 |
| 200 | 〃 | 180 | 6.75 | 2.09 | 41 |
| 300 | 〃 | 280 | 5.33 | 2.32 | 53 |

**Station Ho 49**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) | Nitrite-N ($\mu$g-atoms/l) |
|---|---|---|---|---|---|---|
| 0 | | 0 | 6.83 | 0.75 | 28 | 0.15 |
| 10 | 10 | 10 | 6.82 | 0.53 | 18 | 0.18 |
| 20 | 〃 | 20 | 6.73 | 1.51 | 34 | 0.19 |
| 30 | 〃 | 30 | 6.79 | 1.71 | 35 | 0.21 |
| 50 | 〃 | 49 | 6.61 | 1.69 | 31 | 0.23 |

**Station Ho 51**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.53 | 0.95 | 9 |
| 10 | 6 | 10 | 6.53 | 0.55 | 11 |
| 20 | 〃 | 20 | 7.52 | 0.62 | 23 |
| 30 | 〃 | 30 | 7.84 | 0.67 | 12 |
| 50 | 〃 | 50 | 7.88 | 1.13 | 20 |
| 75 | 〃 | 75 | 7.07 | 1.87 | 40 |

**Station Ho 52**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.24 | 0.42 | 4 |
| 10 | 6 | 10 | 6.38 | 0.21 | 2 |
| 20 | 〃 | 20 | 7.73 | 0.32 | 4 |
| 30 | 〃 | 30 | 9.13 | 0.70 | 1 |
| 50 | 〃 | 50 | 7.85 | 1.51 | 10 |
| 75 | 〃 | 75 | 7.57 | 1.70 | 20 |
| 100 | 〃 | 99 | 7.14 | 1.87 | 25 |
| 150 | 8 | 149 | 6.47 | 1.85 | 38 |
| 200 | 〃 | 198 | 5.57 | 2.16 | 33 |
| 300 | 〃 | 298 | 4.21 | 2.69 | 46 |

Table 36. (Continued)

**Station Ho 53**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.25 | 0.29 | 5 |
| 10 | 6 | 10 | 6.31 | 0.33 | 8 |
| 20 | 〃 | 20 | 6.85 | 0.38 | 10 |
| 30 | 〃 | 30 | 9.71 | 0.50 | 11 |
| 50 | 〃 | 50 | 8.15 | 1.17 | 10 |
| 75 | 〃 | 75 | 7.23 | 1.64 | 25 |
| 100 | 14 | 97 | 6.86 | 1.76 | 38 |
| 150 | 〃 | 146 | 5.99 | 1.90 | 50 |
| 200 | 〃 | 194 | 5.56 | 2.06 | 50 |
| 300 | 〃 | 294 | 4.68 | 2.34 | 54 |

**Station Ho 54**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 8.56 | 0.25 | 14 |
| 10 | 12 | 10 | 8.57 | 0.14 | 10 |
| 20 | 〃 | 20 | 9.95 | 0.18 | 10 |
| 30 | 〃 | 29 | 7.51 | 0.90 | 25 |
| 50 | 〃 | 49 | 6.58 | 1.51 | 30 |
| 75 | 〃 | 74 | 6.55 | 1.56 | 38 |
| 100 | 〃 | 98 | 6.15 | 1.80 | 37 |

**Station Ho 55**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.14 | 0.20 | 5 |
| 10 | 16 | 10 | 6.16 | 0.14 | 9 |
| 20 | 〃 | 19 | 8.22 | 0.31 | 9 |
| 30 | 〃 | 29 | 8.88 | 0.68 | 5 |
| 50 | 28 | 44 | 8.38 | 1.17 | 15 |
| 75 | 〃 | 66 | 7.52 | 1.64 | 18 |
| 100 | 〃 | 88 | 7.15 | 1.82 | 32 |
| 150 | 40 | 115 | 6.67 | 1.88 | 36 |
| 200 | 〃 | 160 | 6.30 | 1.85 | 42 |
| 300 | 〃 | 243 | 4.88 | 2.00 | 45 |

**Station Ho 56**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/$l$) | Phosphate-P ($\mu$g-atoms/$l$) | Silicate-Si ($\mu$g-atoms/$l$) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.38 | 0.78 | 4 |
| 10 | 4 | 10 | 6.52 | 0.86 | 8 |
| 20 | 〃 | 20 | 7.73 | 0.78 | 12 |
| 30 | 〃 | 30 | 6.64 | 0.78 | 13 |
| 50 | 〃 | 50 | 7.73 | 2.28 | 16 |
| 75 | 12 | 74 | 7.12 | 2.46 | 30 |
| 100 | 〃 | 98 | 6.88 | 2.55 | 37 |
| 150 | 〃 | 147 | 7.86 | 2.46 | 16 |
| 200 | 〃 | 196 | 6.67 | 2.46 | 37 |

Table 36. (Continued)

**Station Ho 57**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.57 | 0.28 | 6 |
| 10 | 4 | 10 | 6.68 | 0.33 | 5 |
| 20 | 〃 | 20 | 8.67 | 0.41 | 8 |
| 30 | 〃 | 30 | 8.50 | 1.19 | 15 |
| 50 | 〃 | 50 | 7.76 | 1.71 | 21 |
| 75 | 〃 | 75 | 7.57 | 1.75 | 25 |
| 100 | 〃 | 100 | 7.25 | 1.91 | 27 |
| 150 | 〃 | 150 | 6.88 | 1.80 | 33 |
| 200 | 〃 | 200 | 6.46 | 1.98 | 50 |
| 300 | 〃 | 298 | 5.47 | 2.16 | 52 |

**Station Ho 58**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.65 | 0.57 | 11 |
| 10 | 22 | 9 | 6.70 | 0.46 | 8 |
| 20 | 〃 | 18 | 7.76 | 0.76 | 16 |
| 30 | 〃 | 28 | 8.26 | 1.01 | 16 |
| 50 | 〃 | 46 | 7.09 | 1.68 | 33 |
| 75 | 〃 | 70 | 7.22 | 1.94 | 41 |
| 100 | | 93 | 7.16 | 1.96 | 33 |
| 150 | 40 | 128 | 6.82 | 1.99 | 37 |
| 200 | 〃 | 174 | 6.66 | 2.07 | 33 |
| 300 | 〃 | 267 | 5.68 | 2.20 | 54 |

**Station Ho 59**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.29 | 0.59 | 10 |
| 10 | 10 | 10 | 7.26 | 0.61 | 15 |
| 20 | 〃 | 20 | 7.89 | 0.79 | 17 |
| 30 | 〃 | 30 | 7.58 | 1.09 | 23 |
| 50 | 〃 | 49 | 6.99 | 1.53 | 23 |
| 75 | 〃 | 74 | 6.59 | 1.62 | 43 |
| 100 | 〃 | 98 | 6.47 | 1.68 | 41 |
| 150 | 〃 | 148 | 6.11 | 1.94 | 44 |
| 200 | 16 | 196 | 6.31 | 1.94 | 52 |
| 300 | 〃 | 296 | 5.52 | 2.00 | 52 |

**Station Ho 60**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 7.09 | 0.64 | 23 |
| 10 | 6 | 10 | 6.92 | 0.75 | 14 |
| 20 | 〃 | 20 | 7.54 | 0.87 | 19 |
| 30 | 〃 | 30 | 7.81 | 0.98 | 18 |
| 50 | 10 | 49 | 7.60 | 1.39 | 20 |
| 75 | 〃 | 74 | 7.04 | 1.63 | 30 |
| 100 | 〃 | 98 | 6.68 | 1.87 | 34 |
| 150 | 40 | 115 | 5.85 | 1.94 | 42 |
| 200 | 〃 | 153 | 5.53 | 2.07 | 46 |
| 300 | 〃 | 245 | 5.21 | 2.15 | 46 |

Table 36. (Continued)

**Station Ho 61**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) | Nitrite-N ($\mu$g-atoms/l) |
|---|---|---|---|---|---|---|
| 0 | | 0 | 7.06 | 0.44 | 15 | 0.15 |
| 10 | 20 | 9 | 7.07 | 0.45 | 19 | 0.13 |
| 20 | 〃 | 19 | 7.39 | 0.53 | 27 | 0.17 |
| 30 | 〃 | 28 | 8.23 | 0.99 | 15 | 0.38 |
| 50 | 〃 | 47 | 6.76 | 1.25 | 23 | 0.37 |
| 75 | 〃 | 71 | 6.56 | 1.42 | 27 | 0.32 |
| 100 | 34 | 83 | 6.72 | 1.46 | 38 | 0.25 |
| 150 | 〃 | 124 | 6.62 | 1.68 | 38 | 0.16 |
| 200 | 〃 | 166 | 6.33 | 1.71 | 42 | 0.13 |
| 300 | 〃 | 250 | 5.69 | 1.79 | 48 | 0.09 |

**Station Ho 62**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) |
|---|---|---|---|---|---|
| 0 | | 0 | 6.10 | 0.27 | 15 |
| 10 | 4 | 10 | 7.20 | 0.37 | 17 |
| 20 | 〃 | 20 | 8.56 | 0.51 | 19 |
| 30 | 〃 | 30 | 8.11 | 0.81 | 20 |
| 50 | 〃 | 50 | 6.81 | 1.15 | 29 |
| 75 | 〃 | 75 | 6.58 | 1.30 | 32 |
| 100 | 〃 | 100 | 6.67 | 1.46 | 36 |
| 150 | 9 | 148 | 6.45 | 1.41 | 30 |
| 200 | 〃 | 197 | 6.26 | 1.58 | 38 |
| 300 | 〃 | 297 | 5.28 | 1.84 | 40 |

**Station Ho 63**

| Wire length (m) | Wire angle (degree) | Depth (m) | $O_2$ (cc/l) | Phosphate-P ($\mu$g-atoms/l) | Silicate-Si ($\mu$g-atoms/l) | Nitrite-N ($\mu$g-atoms/l) |
|---|---|---|---|---|---|---|
| 0 | | 0 | 5.88 | 0.30 | 21 | 0.15 |
| 10 | 4 | 10 | 6.14 | 0.33 | 12 | 0.12 |
| 20 | 〃 | 20 | 8.65 | 0.90 | 11 | 0.30 |
| 30 | 〃 | 30 | 7.57 | 1.27 | 16 | 0.51 |
| 50 | 6 | 50 | 7.15 | 1.36 | 27 | 0.30 |
| 75 | 〃 | 75 | 7.17 | 1.52 | 31 | 0.23 |
| 100 | 〃 | 99 | 7.08 | 1.57 | 22 | 0.19 |
| 150 | 16 | 148 | 6.79 | 1.59 | 24 | 0.13 |
| 200 | 〃 | 197 | 6.60 | 1.60 | 29 | 0.09 |
| 300 | 〃 | 296 | 5.33 | 1.88 | 38 | 0.06 |

## 7. Data on Plankton Collected with a Fine Mesh Net
(細目ネット採集プランクトン記録)

Vertical hauls with a fine mesh net, 30 cm × 150 cm, conical, made of bolting silk XX 13, having approximately 0.11 mm mesh aperture, were carried out from about 100 meter depth (estimated by wire angle) to the surface once at each hydrographic station.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

Displacement volume of the samples was measured by means of aspiration filtering apparatus, and wet weight of the samples was obtained by weighing the samples retained on the filter paper of this apparatus.

Dominant forms occurring in the samples were recorded.

The measurement was made at the Hokkaido Regional Fisheries Research Laboratory in Yoichi.

Table 37. Plankton data (30 cm × 150 cm, fine mesh net) in the "Hokusei

| Station | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Revolutions of flow-meter, Rig. 131 | Volume of water filtered ($m^3$) |
|---|---|---|---|---|---|---|---|
| Ho 1 | 42°58′ N 145°59′ E | June 6 | 2000 | 100 | 35 | 637 | 2.9 |
| Ho 2 | 44°00′ N 148°00′ E | 7 | 2245 | 110 | 25 | 920 | 4.1 |
| Ho 3 | 44°52′ N 149°45′ E | 8 | 1950 | 100 | 4 | 650 | 3.1 |
| Ho 4 | 45°45′ N 151°18′ E | 9 | 1910 | 100 | 0 | 550 | 2.5 |
| Ho 5 | 47°08′ N 150°38′ E | 10 | 1615 | 118 | 32 | 845 | 3.8 |
| Ho 6 | 46°09′ N 149°05′ E | 11 | 1455 | 105 | 20 | 590 | 2.7 |
| Ho 7 | 45°21′ N 146°48′ E | 12 | 1855 | 125 | 32 | 690 | 3.1 |
| Ho 8 | 45°10′ N 144°26′ E | 13 | 1633 | 105 | 15 | 460 | 2.1 |
| Ho 9 | 43°30′ N 147°23′ E | 23 | 0640 | 115 | 30 | 865 | 3.9 |
| Ho 10 | 45°42′ N 151°12′ E | 24 | 0635 | 144 | 46 | 1720 | 7.7 |
| Ho 11 | 47°04′ N 153°14′ E | 25 | 0640 | 106 | 20 | 630 | 2.8 |
| Ho 12 | 48°17′ N 154°48′ E | 25 | 2030 | 110 | 25 | 850 | 3.8 |
| Ho 13 | 49°12′ N 155°33′ E | 26 | 1946 | 109 | 23 | 560 | 2.5 |
| Ho 14 | 50°30′ N 154°00′ E | 27 | 1640 | 100 | 7 | 390 | 1.8 |
| Ho 15 | 48°59′ N 152°46′ E | 28 | 1930 | 103 | 15 | 490 | 2.2 |
| Ho 16 | 47°28′ N 151°20′ E | 29 | 1630 | 106 | 20 | 559 | 2.5 |
| Ho 17 | 45°41′ N 150°50′ E | 30 | 0745 | 106 | 20 | 532 | 2.4 |
| Ho 18 | 45°05′ N 145°25′ E | July 11 | 1935 | 102 | 11 | 710 | 4.8 |
| Ho 19 | 45°47′ N 147°34′ E | 12 | 0705 | 131 | 40 | 1200 | 8.2 |
| Ho 20 | 46°48′ N 149°45′ E | 12 | 2020 | 129 | 39 | 2205 | 15.0 |
| Ho 21 | 48°07′ N 151°42′ E | 13 | 1955 | 105 | 17 | 530 | 3.6 |
| Ho 22 | 49°37′ N 151°12′ E | 14 | 1850 | 105 | 18 | 600 | 4.1 |
| Ho 23 | 50°30′ N 153°32′ E | 15 | 1625 | 101 | 9 | 350 | 2.4 |
| Ho 24 | 51°18′ N 154°24′ E | 16 | 1645 | 114 | 29 | 440 | 3.0 |
| Ho 25 | 51°53′ N 155°32′ E | 17 | 1615 | 109 | 24 | 475 | 3.2 |
| Ho 26 | 52°32′ N 155°18′ E | 19 | 1830 | 75 | 10 | 460 | 3.1 |
| Ho 27 | 52°37′ N 155°36′ E | 20 | 1810 | 55 | 25 | 250 | 2.1 |
| Ho 28 | 54°50′ N 155°08′ E | 21 | 1930 | 60 | 2 | 215 | 1.5 |

Maru" to the North Pacifc and Okhotsk Sea in June–August 1960

| Displacement volume per $1000m^3$ (cc) | Wet weight per $1000m^3$ of water (gr) | Dominant species |
|---|---|---|
| 350 | 1154 | Copepods, Copepoda nauplius |
| 2082 | 2058 | *Fragilaria* sp., *Chaetoceros debilis* |
| 885 | 787 | *Rhizosolenia hebetata* f. *semispina*, *Ch. debilis* |
| 405 | 729 | *Ch. debilis*, *Ch. concavicornis* |
| 528 | 501 | *Coscinodiscus radiatus*, *Ch. atlanticus*, *Ch. concavicornis* |
| 679 | 491 | *Cosc. radiatus*, *Ch. atlanticus* |
| 484 | 258 | *Cosc. radiatus*, Copepods |
| 631 | 291 | *Cosc. radiatus*, *Ceratium arcticum*, *Ch. atlanticus*, Copepods |
| 1031 | 902 | *Thal'ra Nordenskiöldi* |
| 324 | 311 | *Ch. debilis*, *Thal'rix longissima*, *Rh. hebetata* f. *semispina* |
| 707 | 919 | *Ch. debilis*, *Rh. hebetata* f. *semispina*, *Ch. concavicornis* |
| 1178 | 759 | Copepods, *Peridinium* sp., *Rh. hebetata* f. *semispina* |
| 437 | 318 | *Ch. debilis* |
| 1143 | 857 | *Rh. hebetata* f. *semispina* |
| 773 | 682 | *Ch. atlanticus*, *Cosc. radiatus*, *Rh. hebetata* f. *semispina* |
| 717 | 877 | *Cosc. radiatus*, *Ch. atlanticus* |
| 837 | 795 | *Ch. debilis* |
| 393 | 289 | *Ch. concavicornis*, *Ch. atlanticus*, *Cosc. radiatus* |
| 122 | 232 | *Ch. radicans*, *Ch. compressus* |
| 999 | 1058 | *Ch. concavicornis*, *Cosc. radiatus*, *Ch. atlanticus* |
| 2216 | 2576 | *Rh. hebetata* f. *semispina*, *Ch. concavicornis* |
| 1345 | 831 | *Rh. hebetata* f. *semispina*, *Ch. atlanticus* |
| 798 | 630 | *Rh. hebetata* f. *semispina*, *Ch. atlanticus*, *Ch. concavicornis* |
| 502 | 535 | *Rh. hebetata* f. *semispina* |
| 898 | 464 | *Rh. hebetata* f. *semispina* |
| 256 | 351 | *Ch. debilis*, *Rh. hebetata* f. *semispina* |
| 571 | 667 | *Rh. hebetata* f. *semispina* |
| 1225 | 1361 | *Rh. hebetata* f. *semispina*, *Ceratium longipes*, *Cosc. radiatus*, Copepods |

Table 37.

| Station | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Revolutions of flow-meter, Rig. 131 | Volume of water filtered ($m^3$) |
|---|---|---|---|---|---|---|---|
| Ho 29 | 56°11′N 155°03′E | July 22 | 2150 | 85 | 38 | 1190 | 8.1 |
| Ho 30 | 55°24′N 153°08′E | 23 | 0635 | 113 | 28 | 643 | 4.4 |
| Ho 31 | 55°00′N 152°00′E | 23 | 1350 | 119 | 33 | 820 | 5.6 |
| Ho 32 | 54°08′N 152°42′E | 23 | 2020 | 109 | 24 | 510 | 3.5 |
| Ho 33 | 53°05′N 153°30′E | 24 | 2030 | 110 | 25 | 310 | 2.1 |
| Ho 34 | 52°08′N 152°14′E | 25 | 0630 | 117 | 32 | 440 | 3.0 |
| Ho 35 | 50°39′N 150°52′E | 25 | 1825 | 102 | 10 | 420 | 2.9 |
| Ho 36 | 49°08′N 149°30′E | 26 | 0625 | 108 | 22 | 390 | 2.7 |
| Ho 37 | 47°48′N 147°46′E | 26 | 1830 | 171 | 34 | 652 | 4.5 |
| Ho 38 | 46°31′N 146°06′E | 27 | 0625 | 110 | 25 | 490 | 3.3 |
| Ho 39 | 46°17′N 146°11′E | Aug. 6 | 1835 | 102 | 12 | 162 | 1.1 |
| Ho 40 | 46°42′N 148°30′E | 7 | 0640 | 110 | 25 | 520 | 3.5 |
| Ho 41 | 47°18′N 150°41′E | 7 | 1840 | 112 | 27 | 663 | 4.5 |
| Ho 42 | 48°58′N 152°47′E | 8 | 1925 | 104 | 16 | 160 | 1.1 |
| Ho 43 | 50°38′N 153°54′E | 10 | 0630 | 104 | 15 | 93 | 0.6 |
| Ho 47 | 50°55′N 154°03′E | 11 | 2400 | 106 | 20 | 故障 | |
| Ho 48 | 52°05′N 154°55′E | 12 | 1600 | 115 | 30 | 1033 | 7.0 |
| Ho 49 | 52°36′N 155°43′E | 13 | 1940 | 57 | 28 | 318 | 2.2 |
| Ho 50 | 53°33′N 155°23′E | 14 | 2105 | 76 | 37 | 612 | 4.2 |
| Ho 51 | 54°52′N 154°57′E | 15 | 0900 | 104 | 17 | 445 | 3.0 |
| Ho 52 | 56°10′N 154°07′E | 15 | 1900 | 101 | 7 | 430 | 2.9 |
| Ho 53 | 57°33′N 153°11′E | 16 | 0605 | 103 | 15 | 故障 | |
| Ho 54 | 58°33′N 152°19′E | 16 | 1700 | 110 | 25 | 842 | 5.7 |
| Ho 55 | 56°51′N 151°55′E | 17 | 1840 | 115 | 30 | 1011 | 6.9 |
| Ho 56 | 54°56′N 151°55′E | 18 | 0630 | 106 | 21 | 602 | 4.1 |
| Ho 57 | 53°13′N 152°19′E | 18 | 1805 | 102 | 10 | 455 | 3.1 |
| Ho 58 | 51°34′N 153°18′E | 19 | 0630 | 122 | 35 | 670 | 4.6 |
| Ho 59 | 50°25′N 154°25′E | 19 | 1806 | 109 | 24 | 327 | 2.2 |

(Continued)

| Displacement volume per $1000m^3$ (cc) | Wet weight per $1000m^3$ of water (gr) | Dominant species |
|---|---|---|
| 308 | 271 | *Ceratium longipes* |
| 571 | 594 | *Ch. atlanticus, Thal'rix longissima* |
| 179 | 233 | *Ch. atlanticus, Ceratium longipes, Ceratium arcticum* |
| 288 | 519 | *Ceratium longipes* |
| 1422 | 901 | *Ceratium longipes, Ch. atlanticus* |
| 667 | 733 | *Ceratium longipes, Ptychocylis* sp., *Ch. atlanticus* |
| 385 | 455 | *Ch. atlanticus, Rh. hebetata* f. *semispina* |
| 790 | 865 | *Ch. densus, Ch. atlanticus* |
| 225 | 179 | Copepoda nauplius, *Ch. atlanticus*, Copepods, *Ptychocylis* sp. |
| 360 | 390 | *Ch. atlanticus, Ch. concavicornis, Ch. convolutus, Cosc. radiatus* |
| 909 | 1363 | *Ch. atlanticus, Ceratium fusus*, Copepods |
| 706 | 622 | *Ch. atlanticus, Ch. compressus* |
| 841 | 840 | *Ch. atlanticus* |
| 2752 | 2385 | *Rh. hebetata* f. *semispina, Ch. atlanticus* |
| 3968 | 3016 | *Ceratium longipes*, Copepods |
| | | *Ch. debilis, Rh. hebetata* f. *semispina* |
| 569 | 441 | Copepods, *Ch. convolutus* |
| 507 | 369 | *Leptocylindrus* sp., *Rh. hebetata* f. *semispina* |
| 719 | 480 | *Rh. hebetata* f. *semispina, Ch. decipiens* |
| 329 | 461 | Copepods, *Ceratium longipes* |
| 171 | 239 | *Ceratium longipes, Ch. atlanticus*, Copepoda nauplius |
| | | *Ceratium longipes, Ch. atlanticus* |
| 349 | 279 | *Thal'ra Nordenskiöldi* |
| 291 | 378 | *Ceratium longipes, Ceratium fusus, Ch. atlanticus* |
| 732 | 468 | *Ceratium longipes, Ch. atlanticus* |
| 968 | 677 | *Ceratium longipes* |
| 439 | 351 | *Ch. atlanticus, Ceratium longipes, Rh. hebetata* f. *semispina* |
| 901 | 991 | *Rh. hebetata* f. *semispina* |

Table 37.

| Station | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Revolutions of flow-meter, Rig. 131 | Volume of water filtered ($m^3$) |
|---|---|---|---|---|---|---|---|
| Ho 60 | 49°24′ N 152°15′ E | Aug. 20 | 1855 | 108 | 22 | 500 | 3.4 |
| Ho 61 | 48°28′ N 150°12′ E | 21 | 0702 | 110 | 25 | 93 | 0.6 |
| Ho 62 | 47°17′ N 148°06′ E | 21 | 1900 | 100 | 5 | 312 | 2.1 |
| Ho 63 | 46°25′ N 146°00′ E | 22 | 0700 | 111 | 26 | 450 | 3.1 |

Flow-meter calibration

Flow-meter: Rig. 131

150–0 m exactly vertical haul

1600 Revolutions
1560 〃
1560 〃
1570 〃

Mean 1572 〃

Mean revolutions for 100–0 m haul: 1048

(Continued)

| Displacement volume per $1000m^3$ (cc) | Wet weight per $1000m^3$ of water (gr) | Dominant species |
|---|---|---|
| 882 | 791 | *Ch. atlanticus*, *Rh. hebetata* f. *semispina*, *Ceratium longipes* |
| 4688 | 4219 | *Ch. atlanticus* |
| 469 | 7042 | *Ch. atlanticus* |
| 977 | 619 | *Ch. atlanticus*, *Ch. convolutus* |

## 8. Data on Plankton Collected with a North Pacific Standard Net
(北太平洋標準ネット採集プランクトン記録)

Vertical hauls with a North Pacific standard net, 45 cm × 180 cm, conical, made of bolting silk GG 54, having approximately 0.33 mm mesh aperture, were carried out from about 150 meter depth (estimated by wire angle) to the surface depth, once at each hydrographic station.

A flow-meter was mounted at the center of the mouth ring of the net to register the quantity of water filtered.

Unusual large organisms such as jellyfish were removed from the samples before they were submitted to weight measurement, and the number of these organisms was counted separately.

Wet weight of the samples was obtained by weighing the samples retained on the filter paper of aspiration filtering apparatus.

The weighing of the samples was made at the Plankton Laboratory of the University.

Dominant forms were recorded with their number per 1000 $m^3$ of water.

Counting of dominant forms was made by T. Aso.

At the request of Dr. Thomas E. Bowman, Smithsonian Institution, U. S. National Museum, Washington, D. C., specimens of amphipods collected in the Okhotsk Sea were sent to him under the agreement of the Research Committee.

Table 38. Plankton data (45 cm × 180 cm, NORPAC standard net) in the "Hokusei

| Cruise | Station | Positoin | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Estimated depth of haul (m) | Revolutions of flow-meter, Rig. 130 | Volume of water-filtered ($m^3$) | Wet weight of sample per 1000$m^3$ (gr) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8(1) | Ho 1 | 42°58′ N 145°59′ E | June 6 | 2000 | 177 | 32° | 150.1 | 2140 | 29.3 | 537.2 |
| | Ho 2 | 44°00′ N 148°00′ E | 〃 7 | 2245 | 185 | 35° | 151.5 | 2120 | 29.0 | 103.2 |
| | Ho 3 | 44°52′ N 149°45′ E | 〃 8 | 1950 | 150 | 7° | 148.8 | 1470 | 20.1 | 253.7 |
| | Ho 4 | 45°45′ N 151°18′ E | 〃 9 | 1910 | 150 | 7° | 148.8 | 1390 | 19.0 | 247.4 |
| | Ho 5 | 47°08′ N 150°38′ E | 〃 10 | 1615 | 165 | 30° | 142.9 | 1880 | 25.8 | 395.5 |
| | Ho 6 | 46°09′ N 149°05′ E | 〃 11 | 1455 | 155 | 20° | 145.5 | 1590 | 21.8 | 142.2 |
| | Ho 7 | 45°21′ N 146°48′ E | 〃 12 | 1915 | 185 | 31° | 158.5 | 2150 | 29.5 | 169.5 |
| | Ho 8 | 45°10′ N 144°26′ E | 〃 13 | 1640 | 155 | 13° | 151.0 | 1420 | 19.5 | 20.5 |
| 8(2) | Ho 9 | 43°30′ N 147°23′ E | 〃 23 | 0707 | 165 | 28° | 145.5 | 2030 | 27.8 | 428.1 |
| | Ho 10 | 45°42′ N 151°12′ E | 〃 24 | 0652 | 233 | 50° | 149.6 | 3420 | 46.9 | 526.7 |
| | Ho 11 | 47°04′ N 153°14′ E | 〃 25 | 0655 | 153 | 12° | 149.6 | 1420 | 19.5 | 348.7 |
| | Ho 12 | 48°17′ N 154°48′ E | 〃 〃 | 2030 | 163 | 23° | 150.0 | 1825 | 25.0 | 200.0 |
| | Ho 13 | 49°12′ N 155°33′ E | 〃 26 | 1952 | 156 | 16° | 150.0 | 1330 | 18.2 | 587.9 |
| | Ho 14 | 50°30′ N 154°00′ E | 〃 27 | 1700 | 150 | 7° | 148.8 | 1220 | 16.7 | 275.4 |
| | Ho 15 | 48°59′ N 152°46′ E | 〃 28 | 1950 | 151 | 9° | 149.0 | 1000 | 13.7 | 292.0 |
| | Ho 16 | 47°28′ N 151°20′ E | 〃 29 | 1640 | 165 | 15° | 159.4 | 1582 | 21.7 | 138.2 |
| | Ho 17 | 45°41′ N 150°50′ E | 〃 30 | 0700 | 152 | 11° | 159.4 | 1250 | 19.0 | 578.9 |
| 8(3) | Ho 18 | 45°05′ N 145°25′ E | July 11 | 1947 | 156 | 16° | 149.9 | 675 | 10.9 | 512.4 |
| | Ho 19 | 45°47′ N 147°34′ E | 〃 12 | 0705 | 196 | 41° | 148.0 | 2007 | 32.5 | 58.5 |
| | Ho 20 | 46°48′ N 149°45′ E | 〃 〃 | 2035 | 150 | 41° | 113.2 | 1769 | 28.6 | 404.2 |
| | Ho 21 | 48°07′ N 151°42′ E | 〃 13 | 2010 | 156 | 16° | 149.9 | 1350 | 21.8 | 628.4 |
| | Ho 22 | 49°37′ N 153°12′ E | 〃 14 | 1910 | 160 | 20° | 141.0 | 1410 | 22.8 | 675.4 |
| | Ho 23 | 50°30′ N 153°32′ E | 〃 15 | 1635 | 152 | 10° | 149.9 | 705 | 11.4 | 307.0 |
| | Ho 24 | 51°18′ N 154°24′ E | 〃 16 | 1647 | 173 | 30° | 149.8 | 1620 | 26.2 | 335.9 |
| | Ho 25 | 51°53′ N 155°32′ E | 〃 17 | 1615 | 158 | 18° | 150.3 | 1260 | 20.4 | 299.0 |
| | Ho 26 | 52°32′ N 155°18′ E | 〃 19 | 1835 | 75 | 8° | 74.3 | 1520 | 24.6 | 126.0 |
| | Ho 27 | 52°37′ N 155°36′ E | 〃 20 | 1810 | 57 | 28° | 50.3 | 150 | 2.4 | 1125.0 |
| | Ho 28 | 54°50′ N 155°08′ E | 〃 21 | 1930 | 63 | 18° | 60.0 | 530 | 8.6 | 895.3 |
| | Ho 29 | 56°11′ N 155°03′ E | 〃 22 | 2150 | 84 | 32° | 71.2 | 360 | 5.8 | 706.9 |
| | Ho 30 | 55°24′ N 153°08′ E | 〃 23 | 0640 | 170 | 28° | 150.1 | 1110 | 17.9 | 290.5 |
| | Ho 31 | 55°00′ N 152°00′ E | 〃 〃 | 1352 | 173 | 30° | 150.0 | 1680 | 27.2 | 106.6 |
| | Ho 32 | 54°08′ N 152°42′ E | 〃 〃 | 2030 | 181 | 34° | 150.0 | 1650 | 20.0 | 490.0 |
| | Ho 33 | 53°05′ N 153°30′ E | 〃 24 | 2040 | 159 | 19° | 150.4 | 1620 | 26.2 | 137.4 |
| | Ho 34 | 52°08′ N 152°14′ E | 〃 25 | 0745 | 173 | 30° | 150.0 | 150 | 2.4 | 2625.0 |
| | Ho 35 | 50°39′ N 150°52′ E | 〃 〃 | 1840 | 151 | 7° | 150.0 | 270 | 4.4 | 1090.9 |
| | Ho 36 | 49°08′ N 149°30′ E | 〃 26 | 0635 | 173 | 30° | 149.8 | 170 | 2.7 | 2629.6 |
| | Ho 37 | 47°48′ N 147°46′ E | 〃 〃 | 1835 | 196 | 40° | 150.1 | 90 | 1.5 | 1533.3 |

Maru" cruise 8 (1–4) to the North Pacific and Okhotsk Sea in June–August 1960

| Dominant organisms (Number in 1000m³) | | | | | | | | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a haul) | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Calanus cristatus* | *Calanus plumchrus* | *Calanus finmarchicus* | *Metridia lucens* | *Eucalanus bungii bungii* | Euphausiid | Amphipod | *Sagitta* | | *Aglantha* | Others |
| 11130 | 65140 | 0 | 25600 | 38760 | 6260 | 2860 | 10680 | | 27 | |
| 690 | 4900 | 0 | 8530 | 7240 | 140 | 3230 | 990 | | 6 | |
| 6720 | 24500 | 0 | 6900 | 21100 | 50 | 4200 | 6700 | | 21 | |
| 3420 | 27140 | 0 | 12720 | 25400 | 50 | 3180 | 12300 | | 20 | |
| 5780 | 29020 | 0 | 3980 | 24260 | 620 | 1560 | 2110 | | 67 | |
| 240 | 54460 | 0 | 0 | 16740 | 370 | 5150 | 870 | | 31 | 1 squid<br>1 *Clione* |
| 270 | 9660 | 0 | 79830 | 3400 | 440 | 2010 | 310 | | 8 | |
| 60 | 3670 | 0 | 1020 | 5200 | 260 | 0 | 260 | | | |
| 4280 | 81650 | 0 | 23900 | 27360 | 250 | 4320 | 4030 | | 35 | |
| 11510 | 33680 | 0 | 3110 | 28480 | 270 | 3280 | 8320 | | 42 | 1 jellyfish |
| 7490 | 35900 | 0 | 1530 | 37940 | 1680 | 510 | 4280 | | 65 | 1 *Clione* |
| 3440 | 21440 | 0 | 5440 | 42560 | 13840 | 2080 | 5080 | | 66 | |
| 14340 | 42240 | 0 | 40920 | 58520 | 11390 | 16720 | 2590 | | 24 | |
| 2160 | 70320 | 0 | 5520 | 7200 | 60 | 13200 | 10500 | | 39 | 1 squid |
| 7450 | 70960 | 0 | 450260 | 17230 | 2850 | 18400 | 6350 | | 28 | |
| 2030 | 24750 | 0 | 1560 | 17480 | 180 | 1660 | 1200 | | 16 | |
| 20160 | 86920 | 0 | 0 | 62120 | 1700 | 2330 | 1170 | | 10 | |
| 1560 | 34960 | 0 | 188050 | 5150 | 3310 | 5520 | 5800 | | 1 | |
| 60 | 28580 | 0 | 12830 | 1300 | 310 | 640 | 1920 | | 6 | |
| 2160 | 96320 | 0 | 136640 | 4200 | 250 | 2520 | 280 | | | |
| 2290 | 75440 | 0 | 200930 | 7730 | 280 | 26130 | 600 | | 2 | |
| 23950 | 8620 | 0 | 16190 | 15140 | 880 | 1940 | 2460 | | 24 | 1 squid |
| 6400 | 90460 | 0 | 14260 | 20240 | 2460 | 2460 | 5720 | | 37 | |
| 4280 | 182860 | 0 | 2430 | 13830 | 2470 | 6840 | 4180 | | 68 | |
| 3330 | 34890 | 0 | 48610 | 14500 | 2790 | 3140 | 6130 | | 28 | |
| 200 | 10820 | 0 | 5660 | 23210 | 2950 | 6230 | 2050 | | 12 | 1 jellyfish |
| 830 | 66720 | 78400 | 0 | 73390 | 153460 | 2090 | 75480 | | 7 | |
| 0 | 0 | 57580 | 0 | 0 | 14380 | 0 | 4290 | | 7 | |
| 0 | 0 | 1039570 | 235980 | 2750 | 37150 | 2060 | 2750 | 2 | 7 | 4 jellyfish |
| 110 | 86240 | 0 | 59580 | 5150 | 0 | 8510 | 5380 | | | |
| 110 | 39960 | 0 | 7990 | 4000 | 80 | 8440 | 440 | | | |
| 1300 | 101000 | 0 | 91200 | 25200 | 200 | 11600 | 4600 | | | 1 jellyfish |
| 5190 | 56540 | 0 | 34810 | 11860 | 1140 | 6080 | 3760 | | 1 | |
| 37920 | 490390 | 0 | 166800 | 140110 | 40030 | 63380 | 28770 | | | |
| 2050 | 356840 | 0 | 50850 | 37230 | 0 | 7260 | 14530 | | | |
| 7410 | 1075960 | 0 | 72520 | 16280 | 0 | 38480 | 48470 | | 4 | |
| 2680 | 557610 | 0 | 512260 | 2670 | 5340 | 18680 | 7340 | | | |

Table 38.

| Cruise | Station | Position | Ship's date | Ship's time | Wire run out (m) | Wire angle (degree) | Estimated depth of haul (m) | Revolutions of flow-meter, Rig. 130 | Volume of water-filtered ($m^3$) | Wet weight of sample per 1000$m^3$ (gr) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8(3) | Ho 38 | 46°31′ N 146°06′ E | July 27 | 0635 | 183 | 35° | 151.5 | | | *(134.5) |
| 8(4) | Ho 39 | 46°17′ N 146°11′ E | Aug. 6 | 1845 | 162 | 22° | 150.1 | 1330 | 21.5 | 111.6 |
| | Ho 40 | 46°42′ N 148°30′ E | 〃 7 | 0650 | 163 | 23° | 150.1 | 1463 | 23.7 | 189.9 |
| | Ho 41 | 47°18′ N 150°41′ E | 〃 〃 | 1850 | 165 | 25° | 149.5 | 1457 | 23.6 | 228.8 |
| | Ho 42 | 48°58′ N 152°47′ E | 〃 8 | 1935 | 160 | 20° | 150.4 | 1360 | 22.0 | 304.5 |
| | Ho 43 | 50°38′ N 153°54′ E | 〃 10 | 0650 | 155 | 14° | 150.4 | 1420 | 23.0 | 234.8 |
| | Ho 47 | 50°55′ N 154°03′ E | 〃 12 | 0010 | 183 | 35° | 151.5 | 1688 | 27.3 | 428.6 |
| | Ho 48 | 52°05′ N 154°55′ E | 〃 〃 | 1630 | 180 | 33° | 151.0 | 1680 | 27.2 | 239.0 |
| | Ho 49 | 52°36′ N 155°43′ E | 〃 13 | 1950 | 58 | 30° | 50.2 | 625 | 10.1 | 99.0 |
| | Ho 50 | 53°33′ N 155°23′ E | 〃 14 | 2120 | 78 | 39° | 60.6 | 1080 | 17.5 | 354.3 |
| | Ho 51 | 54°52′ N 154°57′ E | 〃 15 | 0910 | 104 | 18° | 98.9 | 808 | 13.1 | 351.1 |
| | Ho 52 | 56°10′ N 154°07′ E | 〃 〃 | 0915 | 157 | 17° | 150.1 | 1380 | 22.4 | 209.8 |
| | Ho 53 | 57°33′ N 153°11′ E | 〃 16 | 0620 | 166 | 25° | 150.4 | 1776 | 28.8 | 108.6 |
| | Ho 54 | 58°33′ N 152°19′ E | 〃 〃 | 1710 | 106 | 20° | 99.5 | 1060 | 17.2 | 215.1 |
| | Ho 55 | 56°51′ N 151°55′ E | 〃 17 | 1830 | 190 | 38° | 149.7 | 1135 | 18.4 | 331.5 |
| | Ho 56 | 54°56′ N 151°55′ E | 〃 18 | 0645 | 166 | 25° | 150.4 | 1553 | 25.2 | 178.6 |
| | Ho 57 | 53°13′ N 152°19′ E | 〃 〃 | 1822 | 150 | 6° | 149.3 | 1217 | 19.7 | 329.9 |
| | Ho 58 | 51°34′ N 153°18′ E | 〃 19 | 0640 | 177 | 32° | 150.1 | 1730 | 28.0 | 114.3 |
| | Ho 59 | 50°25′ N 154°25′ E | 〃 〃 | 1820 | 166 | 25° | 150.4 | 1720 | 27.9 | 322.6 |
| | Ho 60 | 49°24′ N 152°15′ E | 〃 20 | 1905 | 160 | 21° | 149.4 | 2100 | 34.0 | 297.1 |
| | Ho 61 | 48°28′ N 150°12′ E | 〃 21 | 0710 | 187 | 37° | 149.4 | 2163 | 35.0 | 265.7 |
| | Ho 62 | 47°17′ N 148°06′ E | 〃 〃 | 1910 | 150 | 3° | 149.9 | 1202 | 19.5 | 235.9 |
| | Ho 63 | 46°25′ N 146°00′ E | 〃 22 | 0705 | 167 | 26° | 150.1 | 1388 | 22.5 | 195.9 |

Flow-meter calibration

Flow-meter: Rig. 130

150-0 m exactly vertical haul

| | | |
|---|---|---|
| | 1740 | Revolutions |
| | 1740 | 〃 |
| | 1745 | 〃 |
| Mean | 1742 | 〃 |

(Continued)

| Dominant organisms (Number in 1000m³) | | | | | | | | Number of fish-larvae | Unusual large organisms removed before weighing (Number in a haul) | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Calanus cristatus* | *Calanus plumchrus* | *Calanus finmarchicus* | *Metridia lucens* | *Eucalanus bungii bungii* | Euphausiid | Amphipod | *Sagitta* | | *Aglantha* | Others |
| (850) | (58890) | 0 | (23940) | (5850) | (410) | (1050) | (160) | | | |
| 330 | 28200 | 0 | 33280 | 2260 | 330 | 890 | 1830 | | | |
| 2240 | 22680 | 840 | 8740 | 25030 | 840 | 2180 | 3700 | | 4 | |
| 1310 | 51410 | 0 | 10420 | 4540 | 420 | 670 | 3910 | | 3 | |
| 1140 | 71100 | 0 | 18360 | 14760 | 1530 | 7740 | 1490 | | 20 | |
| 1910 | 58650 | 0 | 33540 | 7910 | 2920 | 4990 | 2620 | | 1 | |
| 3660 | 12140 | 0 | 59050 | 28560 | 8950 | 6220 | 4880 | | 17 | |
| 920 | 58160 | 0 | 45580 | 21160 | 0 | 2040 | 1850 | | 3 | |
| 0 | 3860 | 0 | 0 | 400 | 6340 | 990 | 2570 | | 1 | 4 jellyfish |
| 860 | 6390 | 155400 | 40810 | 16870 | 49080 | 0 | 2790 | | 2 | |
| 610 | 910 | 08530 | 666370 | 4860 | 300 | 460 | 1290 | 2 | 7 | |
| 0 | 80280 | 720 | 429660 | 5940 | 540 | 0 | 450 | | | |
| 0 | 25830 | 6580 | 656880 | 2380 | 70 | 980 | 420 | | | |
| 0 | 0 | 21340 | 88620 | 1040 | 750 | 460 | 580 | | | |
| 50 | 65450 | 5400 | 227660 | 7780 | 0 | 2160 | 3290 | | 2 | |
| 40 | 65760 | 0 | 18880 | 5280 | 160 | 2080 | 1400 | | | |
| 4980 | 44270 | 0 | 47330 | 20600 | 0 | 610 | 2750 | | 3 | |
| 710 | 13390 | 0 | 51550 | 8500 | 940 | 1220 | 3850 | | | |
| 2260 | 0 | 0 | 42910 | 56160 | 650 | 3960 | 1730 | | 10 | |
| 850 | 26560 | 0 | 40720 | 18210 | 1620 | 2150 | 4760 | | 1 | 1 jellyfish |
| 2030 | 52430 | 0 | 10210 | 13460 | 580 | 1620 | 4120 | | | |
| 820 | 41000 | 0 | 53860 | 11630 | 1070 | 710 | 3160 | | 2 | |
| 710 | 22700 | 0 | 6340 | 5280 | 920 | 1140 | 2550 | | 3 | |

(　　): Flow-meter が回転しなかったので Wire run out 及び Wire angle が同じである Ho 2 の Flow meter を利用した。

* In the sampling the flow-meter did not work, so that the volume of water filtered by the net was assumed by the result at Station Ho 2, where the similar values of length and angle of wire were obtained.

## 9. Data on Plankton Collected with a Larva Net
(稚魚ネット採集プランクトン記録)

A larva net, 130 cm × 450 cm, conical, made of stramin in the anterior 300 cm, and of bolting silk GG 54 in the posterior 150 cm, was towed through approximately the surface water at a speed of about 2 knots for 10 minutes. The net was not equipped with flow-meter, so that the data are not available for exact quantitative studies.

Samplings were carried out at hydrographic stations as well as at about one hour after sunset.

Fish larvae contained in the samples were picked up before the measurement of weight. The data on fish are given on pp. 332-337.

Wet weight of the samples were obtained by weighing the materials left on the filtering disc of the aspiration filtering apparatus.

The weighing of the samples was made at the Plankton Laboratory of the University.

Dominant forms occurring in the samples were recorded.

Recording of dominant forms was made by M. Fukushima.

Table 39. Plankton data (130cm × 450cm, GG 54, Larva net) in the "Hokusei

| Cruise | No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Wet weight of samples in a tow (gr) |
|---|---|---|---|---|---|---|
| 8 (1) | 1 | Ho 1 | 42°58′ N 145°59′ E | June 6 | 2030 | 606.4 |
| | 2 | Ho 2 | 44°00′ N 148°00′ E | 〃 7 | 2300 | 133.6 |
| | 3 | Ho 3 | 44°52′ N 149°45′ E | 〃 8 | 2010 | 45.6 |
| | 4 | Ho 4 | 45°45′ N 151°18′ E | 〃 9 | 1930 | 26.8 |
| | 5 | Ho 5 | 47°08′ N 150°38′ E | 〃 10 | 2030 | 131.6 |
| | 6 | Ho 6 | 46°09′ N 149°05′ E | 〃 11 | 2000 | 46.8 |
| | 7 | Ho 7 | 45°21′ N 146°48′ E | 〃 12 | 2000 | 46.2 |
| | 8 | | 45°18′ N 143°36′ E | 〃 13 | 2020 | 209.2 |
| 8 (2) | 9 | | 44°38′ N 149°38′ E | 〃 23 | 1950 | 94.0 |
| | 10 | | 46°05′ N 152°11′ E | 〃 24 | 1957 | 111.6 |
| | 11 | | 48°17′ N 154°48′ E | 〃 25 | 2045 | 86.0 |
| | 12 | | 49°12′ N 155°33′ E | 〃 26 | 2000 | 37.6 |
| | 13 | | 50°30′ N 154°00′ E | 〃 27 | 2000 | 94.0 |
| | 14 | | 48°59′ N 152°46′ E | 〃 28 | 1955 | 26.0 |
| | 15 | | 47°06′ N 151°16′ E | 〃 29 | 1930 | 27.2 |
| | 16 | | 44°26′ N 148°42′ E | 〃 30 | 1950 | 24.4 |
| 8 (3) | 17 | Ho 18 | 45°05′ N 145°25′ E | July 11 | 2003 ～ 2013 | 91.8 |
| | 18 | Ho 20 | 46°48′ N 149°45′ E | 〃 12 | 2043 ～ 2053 | 31.2 |
| | 19 | Ho 21 | 48°07′ N 151°42′ E | 〃 13 | 2031 ～ 2041 | 71.6 |
| | 20 | Ho 22 | 49°37′ N 153°12′ E | 〃 14 | 1948 ～ 1958 | 30.8 |

Maru" cruise 8 (1-4) to the North Pacific and Okhotsk sea in June-August 1960

| Dominant forms in samples | Unusual large organisms removed before weighing (Number in a tow) | |
|---|---|---|
| | *Aglantha* | Others |
| *Calanus plumchrus* | 8 | 12 squids<br>7 *Clione* |
| *Eucalanus bungii* | 1088 | |
| Diatoms, *Eucalanus bungii* | 21 | 3 jellyfish |
| Diatoms | | 1 jellyfish |
| *Themisto* (small-sized) | 152 | 4 *Clione* |
| *Themisto* (small-sized), *Pseudocalanus minutus* | | 4 jellyfish<br>121 *Clione*<br>1 squid |
| *Themisto* (small-sized), *Pseudocalanus minutus* | 1 | 6 squids<br>37 *Clione* |
| *Themisto* (small-sized) | | |
| Diatoms, *Themisto* (small-sized) | 57 | 14 jellyfish<br>1 *Clione* |
| *Calanus plumchrus*, *Themisto* (small-sized), *Sagitta* | 48 | |
| *Calanus plumchrus* | 236 | 32 squids |
| *Themisto* (small-sized) | 6 | 69 squids<br>1 *Clione* |
| *Themisto* (small-sized), Euphausiids, Crab zoea | | 2 jellyfish<br>91 squids |
| *Themisto* (small-sized) | 47 | 9 *Clione*<br>339 squids |
| *Themisto* (small-sized) | | 2 jellyfish<br>17 squids<br>7 *Clione* |
| Diatoms | 395 | 5 jellyfish<br>4 squids |
| *Pseudocalanus minutus*, *Themisto* (small-sized), *Oithona similis* | | 1 squid |
| *Calanus plumchrus* | 179 | 31 squids<br>1 *Clione*<br>4 jellyfish |
| Diatoms, *Themisto* (small-sized) | 9 | 93 squids<br>1 jellyfish<br>36 *Clione* |
| Diatoms, *Themisto* (small-sized) | 8 | 42 squids<br>12 *Clione* |

Table 39.

| Cruise | No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Wet weight of samples in a tow (gr) |
|---|---|---|---|---|---|---|
| 8 (3) | 21 | Ho 23 | 50°30′ N 153°32′ E | July 15 | 2005 ~ 2015 | 54.6 |
| | 22 | | 51°22′ N 154°17′ E | 〃 16 | 1945 ~ 1955 | 167.2 |
| | 23 | | 52°06′ N 155°20′ E | 〃 17 | 1930 ~ 1940 | 112.8 |
| | 24 | Ho 26 | 52°32′ N 155°18′ E | 〃 19 | 1952 ~ 2002 | 56.8 |
| | 25 | Ho 27 | 52°37′ N 155°36′ E | 〃 20 | 1955 ~ 2005 | 68.8 |
| | 26 | Ho 28 | 54°50′ N 155°08′ E | 〃 21 | 2005 ~ 2015 | 876.8 |
| | 27 | Ho 29 | 56°11′ N 155°03′ E | 〃 22 | 2156 ~ 2206 | 33.8 |
| | 28 | Ho 32 | 54°08′ N 152°41′ E | 〃 23 | 1953 ~ 2003 | 224.0 |
| | 29 | Ho 33 | 53°05′ N 153°30′ E | 〃 24 | 1953 ~ 2003 | 206.4 |
| | 30 | | 50°30′ N 150°45′ E | 〃 25 | 1953 ~ 2003 | 192.8 |
| | 31 | | 47°43′ N 147°40′ E | 〃 26 | 1952 ~ 2002 | 69.0 |
| 8 (4) | 32 | | 46°18′ N 146°20′ E | Aug. 6 | 1950 | 97.6 |
| | 33 | | 47°18′ N 150°41′ E | 〃 7 | 1930 | 36.8 |
| | 34 | | 48°58′ N 152°47′ E | 〃 8 | 2020 | 49.2 |
| | 35 | | 49°32′ N 152°32′ E | 〃 9 | 1930 | 175.6 |
| | 36 | | 50°52′ N 154°05′ E | 〃 10 | 2030 | 544.8 |
| | 37 | | 50°54′ N 154°03′ E | 〃 11 | 1830 | 23.4 |
| | 38 | | 52°05′ N 154°55′ E | 〃 12 | 1900 | 96.8 |
| | 39 | | 52°36′ N 155°43′ E | 〃 13 | 2000 | 77.2 |
| | 40 | | 53°20′ N 155°27′ E | 〃 14 | 1910 | 11.2 |

(Continued)

| Dominant forms in samples | Unusual large organisms removed before weighing (Number in a tow) | |
|---|---|---|
| | *Aglantha* | Others |
| *Themisto* (small-sized), *Calanus plumchrus* | 26 | 2 jellyfish<br>62 squids |
| *Themisto* (small-sized) | 7 | 1 jellyfish<br>873 squids |
| *Themisto* (small-sized) | | 200 squids<br>1 jellyfish |
| Crab zoea | 3 | 18 squids |
| Crab zoea | 727 | 24 squids<br>4 jellyfish |
| *Calanus finmarchicus* | | 2 squids |
| *Calanus finmarchicus*, Euphausiids, *Metridia lucens* | 248 | 416 squids<br>1 jellyfish |
| *Calanus plumchrus*, *Themisto* (small-sized) | | 3 squids |
| *Themisto* (small-sized) | 1 | 34 squids |
| *Themisto* (small-sized) | | 100 squids |
| *Themisto* (small-sized), *Pseudocalanus minutus* | | 20 squids<br>10 *Clione* |
| *Pseudocalanus minutus*, Euphausiids, *Sagitta* | 4 | |
| *Themisto* (small-sized) | | |
| Diatoms, *Themisto* (small-sized), *Oithona similis* | 4 | 16 squids<br>5 jellyfish |
| *Themisto* | 28 | 6 *Clione* |
| *Themisto*, *Metridia lucens* | | 142 squids |
| Diatoms, *Themisto* (small-sized) | | 3 jellyfish |
| *Themisto* (small-sized), *Calanus plumchrus* | | 4 squids |
| Crab zoea | 4 | 2 squids<br>24 jellyfish |
| *Themisto* (small-sized) | 36 | |

Table 39.

| Cruise | No. of collection | Corresponding hydrographic station | Position | Ship's date | Ship's time | Wet weight of samples in a tow (gr) |
|---|---|---|---|---|---|---|
| | 41 | | 56°10′ N 154°07′ E | Aug. 15 | 2010 | 9.2 |
| | 42 | | 56°45′ N 151°55′ E | 〃 17 | 1930 | 135.2 |
| | 43 | | 53°03′ N 152°25′ E | 〃 18 | 2000 | 132.8 |
| | 44 | | 50°25′ N 154°25′ E | 〃 19 | 1905 | 340.0 |
| | 45 | | 49°24′ N 152°15′ E | 〃 20 | 1930 | 341.6 |
| | 46 | | 47°17′ N 148°06′ E | 〃 21 | 1930 | 48.2 |

(Continued)

| Dominant forms in samples | Unusual large organisms removed before weighing (Number in a tow) | |
|---|---|---|
| | *Aglantha* | Others |
| | 372 | |
| *Calanus finmarchicus, Pseudocalanus minutus, Themisto* (small-sized) | | 42 squids |
| *Calanus plumchrus* | | |
| *Calanus plumchrus* | | 7 squids<br>4 jellyfish |
| *Calanus plumchrus* | 7 | 3 squids |
| *Pseudocalanus minutus, Sagitta* | | |

## 10. Data on Fish Larvae Collected with a Larva Net
(稚魚ネット採集稚魚記録)

Specimens of fish larvae were picked up from the mixed plankton samples which were collected by surface tow with a 130 cm larva net (ref. to p. 325)

Identification of fish larvae was made by K. Kobayashi at the Laboratory of Ichthyology of the University.

(To our great regret Professor Shin-ichi Sato passed away on October 27, 1960.)

Table 40. Data on collection of fish larvae (130 cm × 450 cm, larva net; surface tow) in the "Hokusei Maru" Cruise 8 (1-4) to the North Pacific and Okhotsk Sea in June–August 1960

| Number of collection | Corresponding hydrographic station | Lat. | Long. | Ship's date | Ship's time | Fish larvae collected (Species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 1 | Ho 1 | 42°58′ N | 145°59′ E | June 6 | 2030 | *Engraulis japonica* | 3 | 39.8~80.0 |
| | | | | | | *Tarletonbeania crenularis* | 2 | 43.7~47.5 |
| | | | | | | *Ammodytes hexapterus* | 1 | 17.0 |
| | | | | | | *Sebastes* | 9 | 5.5~17.9 |
| | | | | | | *Hexagrammos* | 1 | 35.1 |
| | | | | | | *Hemilepidotus* | 1 | 24.7 |
| 2 | Ho 2 | 44°00′ N | 148°00′ E | 7 | 2300 | *Sebastes* | 1 | 13.6 |
| | | | | | | *Hemilepidotus* | 1 | 26.4 |
| 3 | Ho 3 | 44°52′ N | 149°45′ E | 8 | 2010 | *Lumpenus* | 2 | 21.0~23.0 |
| | | | | | | *Hexagrammos* | 3 | 30.1~34.7 |
| 4 | Ho 4 | 45°45′ N | 151°18′ E | 9 | 1930 | *Lumpenus* | 1 | 21.0 |
| | | | | | | *Hexagrammos* | 1 | 34.5 |
| | | | | | | *Hemilepidotus* | 2 | 18.9~23.1 |
| | | | | | | *Hemilepidotus* ? | 2 | 7.5~11.0 |
| 5 | Ho 5 | 47°08′ N | 150°38′ E | 10 | 2030 | *Ptilichthys goodei* | 1 | 48.0 |
| | | | | | | *Lumpenus* | 1 | — |
| | | | | | | *Hexagrammos* | 2 | 28.1~32.2 |
| | | | | | | *Hemilepidotus* | 34 | 17.0~30.5 |
| | | | | | | *Hemilepidotus* ? | 123 | 6.0~ 8.5 |
| 6 | Ho 6 | 46°09′ N | 149°05′ E | 11 | 2000 | *Lumpenus* | 1 | 21.5 |
| | | | | | | *Hemilepidotus* | 7 | 25.2~30.2 |
| 7 | Ho 7 | 45°21′ N | 146°48′ E | 12 | 2000 | *Bathymaster* | 4 | 40.2~42.1 |
| | | | | | | *Ammodytes hexapterus* | 6 | 16.5~42.5 |
| | | | | | | *Lumpenus* | 1 | 20.0 |
| | | | | | | *Erilepis* ? | 1 | 26.1 |
| | | | | | | *Hexagrammos* | 8 | 22.1~35.5 |
| | | | | | | *Hemilepidotus* | 70 | 15.5~32.5 |
| 8 | | 45°18′ N | 143°36′ E | 13 | 2020 | *Hexagrammos* | 7 | 32.5~47.6 |
| | | | | | | *Hemilepidotus* | 3 | 25.2~27.9 |
| | | | | | | *Gilbertidia* ? | 1 | 19.1 |
| 9 | | 44°38′ N | 149°38′ E | 23 | 1950 | *Lumpenus* | 2 | 17.0~29.1 |
| | | | | | | *Hemilepidotus* ? | 2 | 8.0~ 9.0 |

Table 40. (Continued)

| Number of collection | Corresponding hydrographic station | Lat. | Long. | Ship's date | Ship's time | Fish larvae collected (Species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 10 | | 46°05′ N | 152°11′ E | June 24 | 1957 | *Lumpenus* | 4 | 23.0~28.0 |
| | | | | | | *Hexagrammos* | 3 | 34.5~39.1 |
| | | | | | | *Hemilepidotus* | 26 | 22.5~34.0 |
| | | | | | | Cottidae | 2 | 7.0~ 7.5 |
| 11 | | 48°17′ N | 154°48′ E | 25 | 2045 | *Hemilepidotus* | 2 | 25.5~28.6 |
| | | | | | | *Hemilepidotus* ? | 7 | ca 7.0~9.0 |
| 12 | | 49°12′ N | 155°33′ E | 26 | 2000 | *Ptilichthys goodei* | 1 | 92.5 |
| | | | | | | *Lumpenus* | 1 | 26.1 |
| | | | | | | *Hemilepidotus* | 4 | 23.6~30.7 |
| | | | | | | *Hemilepidotus* ? | 21 | 6.5~ 9.5 |
| | | | | | | *Limanda* ? | 2 | 9.0 |
| | | | | | | *Cleisthenes herzensteini* ? | 2 | 11.5~30.2 |
| 13 | | 50°30′ N | 154°00′ E | 27 | 2000 | *Lumpenus* | 17 | 21.0~30.0 |
| | | | | | | *Hemilepidotus* | 4 | 28.9~30.0 |
| 14 | | 48°59′ N | 152°46′ E | 28 | 1955 | *Lumpenus* | 13 | 22.0~28.0 |
| | | | | | | *Hemilepidotus* ? | 18 | 7.0~ 9.5 |
| | | | | | | *Myoxocephalus* | 1 | 16.0 |
| 15 | | 47°06′ N | 151°16′ E | 29 | 1930 | *Lumpenus* | 4 | 23.5~31.5 |
| | | | | | | *Hemilepidotus* | 4 | 26.9~28.6 |
| | | | | | | *Hemilepidotus* ? | 9 | 8.0~ 9.0 |
| 16 | | 44°26′ N | 148°42′ E | 30 | 1950 | *Hemilepidotus* | 1 | 27.9 |
| | | | | | | *Clidoderma asperrimum* ? | 3 | 30.1~34.4 |
| 17 | Ho 18 | 45°05′ N | 145°25′ E | July 11 | 2003 | *Bathymaster* | 1 | 24.0 |
| | | | | | | *Ammodytes hexapterus* | 2 | 29.0~30.0 |
| | | | | | | *Hexagrammos* | 2 | 42.0~44.4 |
| | | | | | | *Hemilepidotus* | 3 | 19.4~33.1 |
| | | | | | | *Clidoderma asperrimum* | 1 | 31.4 |
| 18 | Ho 20 | 46°48′ N | 149°45′ E | 12 | 2043 | *Hemilepidotus* ? | 1 | 9.0 |
| | | | | | | Cottidae | 1 | 10.5 |
| 19 | Ho 21 | 48°07′ N | 151°42′ E | 13 | 2031 | *Lumpenus* | 10 | 26.0~34.0 |
| | | | | | | *Hexagrammos octogrammus* | 1 | 100.3 |
| | | | | | | *Hemilepidotus* | 2 | 25.5~29.8 |

Table 40. (Continued)

| Number of collection | Corresponding hydrographic station | Lat. | Long. | Ship's date | Ship's time | Fish larvae collected (Species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 20 | Ho 22 | 49°37′ N | 153°11′ E | July 14 | 1948 | *Lumpenus* | 14 | 28.0~31.5 |
| | | | | | | Cottidae | 1 | 15.9 |
| | | | | | | Pleuronectidae | 1 | 24.5 |
| 21 | Ho 23 | 50°30′ N | 153°32′ E | 15 | 2005 | *Lumpenus* | 6 | 29.0~34.0 |
| | | | | | | *Hemilepidotus* ? | 1 | 8.5 |
| | | | | | | Cottidae | 1 | 14.9 |
| 22 | | 51°22′ N | 154°17′ E | 16 | 1945 | *Ptilichthys goodei* | 1 | 97.9 |
| | | | | | | Stichaeidae ? | 1 | 27.5 |
| | | | | | | *Lumpenus* | 106 | 25.5~36.0 |
| | | | | | | *Hemilepidotus* | 1 | 26.7 |
| | | | | | | *Hemilepidotus* ? | 4 | 8.5~ 9.5 |
| | | | | | | *Myoxocephalus* | 2 | 18.7~19.5 |
| | | | | | | Cottidae | 2 | 16.6~17.0 |
| | | | | | | *Liparis* A | 2 | 12.7~16.2 |
| | | | | | | *Theragra chalcogramma* | 3 | 12.5~15.0 |
| 23 | | 52°06′ N | 155°20′ E | 17 | 1930 | *Ptilichthys goodei* | 2 | 98.8~109.5 |
| | | | | | | *Ammodytes hexapterus* | 3 | 20.2~29.7 |
| | | | | | | Stichaeidae ? | 218 | 19.5~33.0 |
| | | | | | | *Lumpenus* | 8 | 28.0~33.5 |
| | | | | | | *Hemilepidotus* ? | 80 | 7.5~11.0 |
| | | | | | | *Triglops* ? | 2 | 16.4~16.9 |
| | | | | | | *Myoxocephalus* | 1 | 20.1 |
| | | | | | | Cottidae | 1 | 16.2 |
| | | | | | | *Liparis* A | 9 | 11.2~17.2 |
| | | | | | | *Eumicrotremus orbis orbis* | 2 | 29.2~35.5 |
| | | | | | | *Podothecus gilberti* | 1 | 17.7 |
| | | | | | | *Hypsagonus quadricornis* | 2 | 17.7 |
| | | | | | | *Cleisthenes herzensteini* ? | 1 | 12.4 |
| | | | | | | Pleuronectidae ? | 2 | 8.0~10.0 |
| | | | | | | *Theragra chalcogramma* | 43 | 8.0~18.5 |
| 24 | Ho 26 | 52°32′ N | 155°18′ E | 19 | 1952 | Stichaeidae ? | 23 | 30.0~31.4 |
| | | | | | | *Myoxocephalus* | 2 | — |
| | | | | | | *Theragra chalcogramma* | 2 | — |

Table 40. (Continued)

| Number of collection | Corresponding hydrographic station | Lat. | Long. | Ship's date | Ship's time | Fish larvae collected (Species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 25 | Ho 27 | 52°37′ N | 155°36′ E | July 20 | 1955 | *Ptilichthys goodei* | 2 | 75.2～95.9 |
| | | | | | | *Ammodytes hexapterus* | 11 | 23.5～37.0 |
| | | | | | | Stichaeidae ? | 20 | 27.1～34.3 |
| | | | | | | *Liparis* A | 11 | 8.6～15.7 |
| | | | | | | *Hypsagonus quadricornis* | 1 | 18.5 |
| | | | | | | Pleuronectidae ? | 11 | 7.5～13.5 |
| | | | | | | *Theragra chalcogramma* | 10 | 5.5～13.0 |
| | | | | | | Gadidae ? | 3 | 18.1 |
| 26 | Ho 28 | 54°50′ N | 155°08′ E | 21 | 2005 | *Bathymaster* | 1 | 32.8 |
| | | | | | | Stichaeidae ? | 5 | 30.0～34.6 |
| | | | | | | *Triglops* ? | 2 | 13.5～14.3 |
| | | | | | | *Myoxocephalus* | 49 | 11.0～24.0 |
| | | | | | | *Liparis* A | 4 | 14.6～16.9 |
| | | | | | | *Podothecus gilberti* ? | 1 | 28.3 |
| | | | | | | *Theragra chalcogramma* | 63 | 9.5～21.0 |
| 27 | Ho 29 | 56°11′ N | 155°03′ E | 22 | 2156 | *Bathymaster* | 8 | 29.9～32.2 |
| | | | | | | *Ammodytes hexapterus* | 2 | 25.0～27.1 |
| | | | | | | Stichaeidae ? | 4 | 36.0～39.6 |
| | | | | | | *Hexagrammos* | 2 | 46.0～56.6 |
| | | | | | | *Myoxocephalus* | 39 | 13.5～21.0 |
| | | | | | | *Liparis* A | 4 | 16.2～19.7 |
| | | | | | | *Podothecus gilberti* | 1 | 19.7 |
| | | | | | | Pleuronectidae | 1 | 9.0 |
| | | | | | | Pleuronectidae ? | 46 | 7.5～13.0 |
| | | | | | | *Theragra chalcogramma* | 14 | 9.0～19.0 |
| | | | | | | Unidentified | 117 | 3.5～ 7.5 |
| 28 | Ho 32 | 54°08′ N | 152°41′ E | 23 | 1935 | *Bathymaster* | 1 | 32.7 |
| | | | | | | *Myoxocephalus* | 2 | — |
| 29 | Ho 33 | 53°05′ N | 153°30′ E | 24 | 1953 | No fish larva | | |
| 30 | | 50°30′ N | 150°45′ E | 25 | 1953 | No fish larva | | |
| 31 | | 47°43′ N | 147°40′ E | 26 | 1952 | *Bathymaster* | 2 | 32.6～34.5 |
| | | | | | | *Ammodytes hexapterus* | 8 | 32.7～44.8 |
| 32 | | 46°18′ N | 146°20′ E | Aug. 6 | 1950 | *Ammodytes hexapterus* | 1 | 51.4 |
| 33 | | 47°18′ N | 150°41′ E | 7 | 1930 | No fish larva | | |

Table 40. (Continued)

| Number of collection | Corresponding hydrographic station | Lat. | Long. | Ship's date | Ship's time | Fish larvae collected (Species or group) | Number of occurrence | Range of total length of fish-larva (mm) |
|---|---|---|---|---|---|---|---|---|
| 34 | | 48°58′ N | 152°47′ E | Aug. 8 | 2020 | *Ptilichthys goodei* | 1 | 140.2 |
| | | | | | | *Theragra chalcogramma* | 2 | 26.1～29.1 |
| 35 | | 49°32′ N | 152°32′ E | 9 | 1930 | *Lumpenus* | 8 | 35.5～40.4 |
| | | | | | | *Hemilepidotus* | 1 | 27.4 |
| 36 | | 50°52′ N | 154°05′ E | 10 | 2030 | *Lumpenus* | 12 | 33.5～37.5 |
| 37 | | 50°54′ N | 154°03′ E | 11 | 1830 | *Lumpenus* | 7 | 35.3～38.0 |
| | | | | | | *Hemilepidotus* | 1 | 36.0 |
| 38 | | 52°05′ N | 154°55′ E | 12 | 1900 | *Ammodytes hexapterus* | 2 | 44.8～54.7 |
| | | | | | | *Lumpenus* | 1 | 34.1 |
| | | | | | | *Eumicrotremus orbis orbis* | 1 | 41.0 |
| 39 | | 52°36′ N | 155°43′ E | 13 | 2000 | *Mallotus* ? | 72 | 11.0～24.5 |
| | | | | | | *Ammodytes hexapterus* | 48 | 13.5～53.5 |
| | | | | | | *Hemilepidotus* | 1 | 15.3 |
| | | | | | | *Liparis* A | 2 | 13.3～15.2 |
| | | | | | | *Liparis* B | 1 | 12.0 |
| | | | | | | Pleuronectidae | 4 | 17.2～22.5 |
| | | | | | | Pleuronectidae | 4 | 12.7～17.4 |
| | | | | | | *Theragra chalcogramma* | 31 | 26.0～38.0 |
| | | | | | | *Gadus macrocephalus* | 1 | 33.2 |
| 40 | | 53°20′ N | 155°27′ E | 14 | 1910 | *Mallotus* | 77 | 14.5～27.0 |
| | | | | | | *Ptilichthys goodei* | 1 | 144.7 |
| | | | | | | *Ammodytes hexapterus* | 7 | 31.9～50.6 |
| | | | | | | Pleuronectidae | 30 | 12.5～23.0 |
| | | | | | | Pleuronectidae | 9 | 12.5～18.5 |
| | | | | | | *Theragra chalcogramma* | 2 | 15.6 |
| 41 | | 56°10′ N | 154°07′ E | 15 | 2010 | Pleuronectidae | 4 | 15.5～16.3 |
| 42 | | 56°45′ N | 151°55′ E | 17 | 1930 | *Ammodytes hexapterus* | 1 | 49.6 |
| 43 | | 53°03′ N | 152°25′ E | 18 | 2000 | *Lumpenus* | 1 | — |
| 44 | | 50°25′ N | 154°24′ E | 19 | 1905 | *Lumpenus* | 6 | 35.2～39.6 |
| 45 | | 49°24′ N | 152°15′ E | 20 | 1930 | *Ptilichthys goodei* | 1 | 149.2 |
| | | | | | | *Pleurogrammus azonus* | 1 | 150.4 |
| 46 | | 47°17′ N | 148°06′ E | 21 | 1930 | *Sebastes taczanowskii* | 1 | 32.8 |

## 11. Data on Salmon Gill-Net Set
(鮭鱒流網試験記録)

Operation was supervised by captain and deck officers, and all hands of crew and cadets were engaged in the work.

The gill net used was made of Amilan; each shackle of net was approximately 40.6 meters long and 6.3 meters deep.

Fish specimens taken with gill net were:

*Oncorhynchus nerka* (*WALBAUM*), Sockeye salmon, Red salmon, Blue-back salmon, Sukkegh salmon, ベニマス, ベニサケ, ベニ

*Oncorhynchus keta* (*WALBAUM*), Chum salmon, Dog salmon, Calico salmon, Keta salmon, サケ, シロサケ, シロ

*Oncorhynchus gorbuscha* (*WALBAUM*), Pink salmon, Humpback salmon, カラフトマス, セッパリマス

*Oncorhynchus tschawytscha* (*WALBAUM*), King salmon, Spring salmon, Chinock salmon, Typee salmon, Tchavike, マスノスケ

*Oncorhynchus kisutch* (*WALBAUM*), Silver salmon, ギンマス, ギンサケ, ギン

*Salvelinus malma* (*WALBAUM*), Dolly vardon trout, オショロコマ

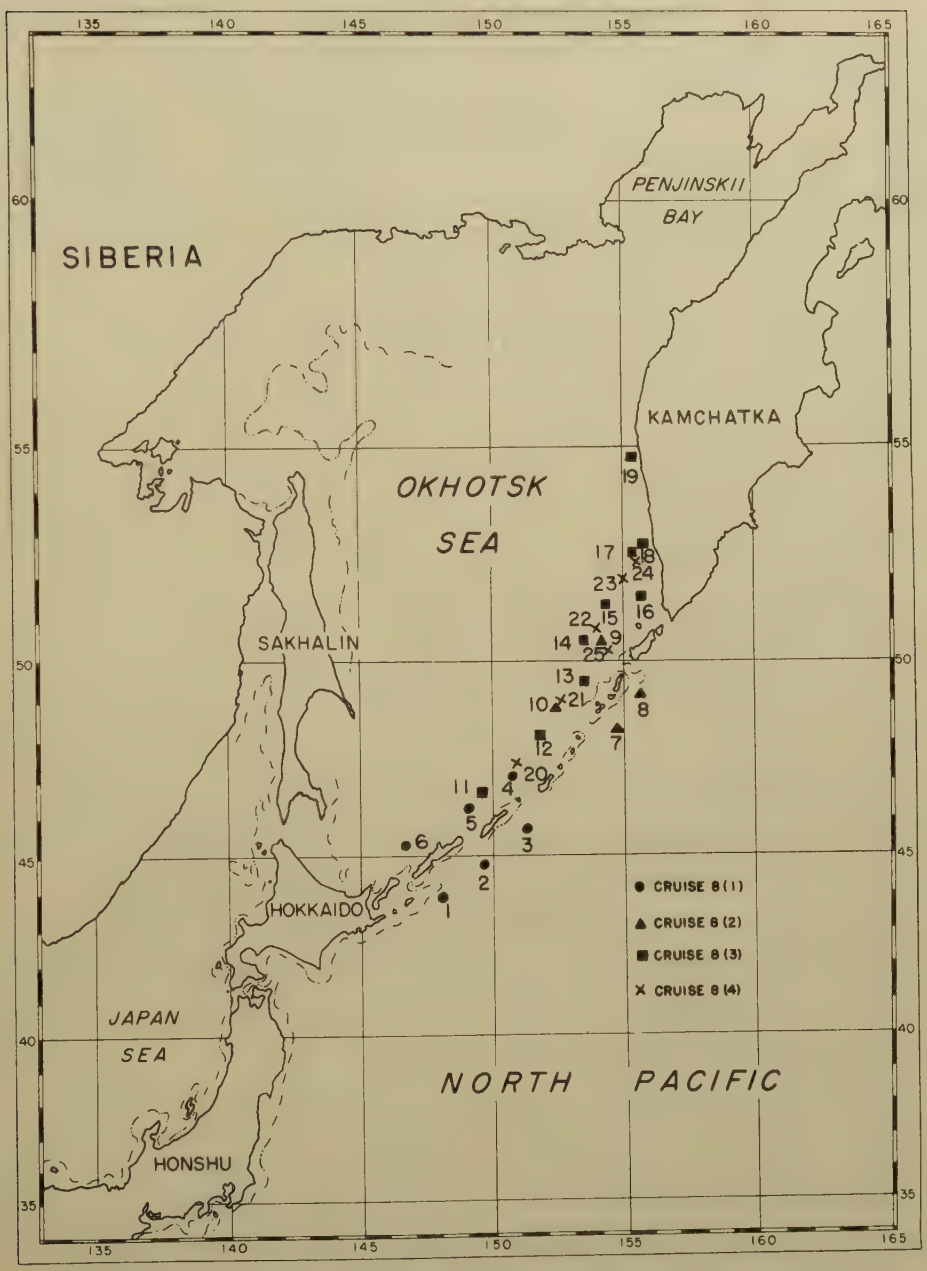



Fig. 29. Locations of gill-net set in the "Hokusei Maru" cruise 8 (1-4) to the North Pacifc and Okhotsk Sea in June-August 1960

Table 41. Data on catch of salmon in the "Hokusei Maru" cruise

| No. of cruise | No. of fishing | Date and time (J.C.T.) | | | | Position of net set | | Direction of drift "toward" (True bearing) | Weather | Wind | | Surface temperature (°C) | Colour of sea | Transparency |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Net set | | Net haul | | | | | | Direction | Force | | | |
| | | Date | Time | Date | Time | Lat. | Long. | | | | | | | |
| 8 (1) | 1 | 6～ 7 | 2123 | 6～ 8 | 0350 | 44°00′ N | 148°00′ E | 225° | r | N E | 3 | 1.9 | | |
| | 2 | 6～ 8 | 1808 | 6～ 9 | 0320 | 44°52′ N | 149°45′ E | 235° | o | N E | 1 | 3.7 | | |
| | 3 | 6～ 9 | 1810 | 6～10 | 0320 | 45°45′ N | 151°18′ E | 45° | o | Calm | | 4.5 | 5 | 6 |
| | 4 | 6～10 | 1730 | 6～11 | 0315 | 47°08′ N | 150°38′ E | 320° | c | S E | 3 | 3.2 | 5 | 8 |
| | 5 | 6～11 | 1730 | 6～12 | 0310 | 46°09′ N | 149°05′ E | 260° | b | N E | 2 | 3.4 | 4 | 7 |
| | 6 | 6～12 | 1815 | 6～13 | 0310 | 45°21′ N | 146°48′ E | 25° | b | S S W | 4 | 3.1 | 4 | 6 |
| 8 (2) | 7 | 6～25 | 1800 | 6～26 | 0240 | 48°17′ N | 154°48′ E | 100° | b | N W | 1 | 2.7 | 6 | 10 |
| | 8 | 6～26 | 1830 | 6～27 | 0240 | 49°12′ N | 155°33′ E | 60° | f | S W | 2 | 3.8 | | |
| | 9 | 6～27 | 1800 | 6～28 | 0340 | 50°30′ N | 154°00′ E | 100° | o | S S E | 1 | 4.6 | | |
| | 10 | 6～28 | 1810 | 6～29 | 0320 | 48°59′ N | 152°46′ E | 50° | f | S | 1 | 4.8 | | |
| 8 (3) | 11 | 7～12 | 1955 | 7～13 | 0300 | 46°38′ N | 149°45′ E | 60° | c | S W | 2 | 8.5 | | |
| | 12 | 7～13 | 1830 | 7～14 | 0300 | 48°07′ N | 151°42′ E | 120° | f | N W | 3 | 6.7 | | |
| | 13 | 7～14 | 1740 | 7～15 | 0300 | 49°37′ N | 153°11′ E | 70° | f | S W | 1 | 4.6 | 7 | |
| | 14 | 7～15 | 1755 | 7～16 | 0315 | 50°30′ N | 153°32′ E | 250° | f | N N W | 1 | 7.0 | 6 | 8 |
| | 15 | 7～16 | 1750 | 7～17 | 0320 | 51°22′ N | 154°17′ E | 110° | f | W | 3 | 6.1 | | |
| | 16 | 7～17 | 1735 | 7～18 | 0315 | 51°35′ N | 155°32′ E | 110° | f | W S W | 2 | 6.9 | 6 | |
| | 17 | 7～19 | 1745 | 7～20 | 0315 | 52°32′ N | 155°18′ E | 100° | f | W S W | 1 | 6.6 | 6 | |
| | 18 | 7～20 | 1735 | 7～21 | 0320 | 52°37′ N | 155°36′ E | 110° | r | E | 3 | 7.3 | | |
| | 19 | 7～21 | 1740 | 7～22 | 0320 | 54°50′ N | 155°08′ E | 290° | r | E S E | 1 | 9.4 | | |
| 8 (4) | 20 | 8～ 7 | 1750 | 8～ 8 | 0315 | 47°18′ N | 150°41′ E | 70° | f | S S W | 1 | 11.1 | 3 | 14 |
| | 21 | 8～ 8 | 1750 | 8～ 9 | 0320 | 48°58′ N | 152°47′ E | 100° | f | Calm | | 8.5 | 3 | |
| | 22 | 8～11 | 1740 | 8～11 | 2200 | 50°55′ N | 154°03′ E | 130° | f | W | 4 | 8.7 | | |
| | 23 | 8～12 | 1750 | 8～13 | 0320 | 52°01′ N | 155°01′ E | 140° | b | N W | 3 | 10.3 | | |
| | 24 | 8～13 | 1905 | 8～14 | 0325 | 52°36′ N | 155°43′ E | 120° | c | N W | 3 | 10.8 | | |
| | 25 | 8～19 | 1730 | 8～20 | 0310 | 50°23′ N | 154°29′ E | 135° | f | N N W | 2 | 9.8 | | |

8(1-4) to the North Pacific and Okhotsk Sea in June–August 1960

| Amount of net cast (Tan) (Depth of net: 6.0m, length of net: 40m) | | | | Catch per one shackle of net with various mesh sizes | | | Percentage of catch | | | | | | Number of fish measured |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mesh 3.5Sun (106mm) | Mesh 4.0Sun (121mm) | Mesh 4.3Sun (127mm) | Total | 106mm | 121mm | 127mm | Red (ベニ) | Chum (シロ) | Pink (マス) | Silver (ギン) | King (マスノスケ) | Dolly vardon trout (オショロコマ) | |
| | 50 | | 50 | | 1.34 | | | 25.4 | 73.1 | | | 1.5 | 60 |
| 20 | 80 | 20 | 120 | 15.35 | 9.73 | 4.20 | | 7.5 | 92.5 | | | | 100 |
| 20 | 80 | 20 | 120 | 23.00 | 5.93 | 4.35 | 0.2 | 8.3 | 91.5 | | | | 117 |
| 20 | 30 | 20 | 70 | 18.25 | 7.66 | 6.70 | 0.1 | 13.1 | 86.8 | | | | 110 |
| 20 | 80 | 20 | 120 | 0.80 | 0.46 | 0.55 | | 61.1 | 38.9 | | | | 91 |
| | 50 | | 50 | | 1.18 | | | 10.2 | 89.8 | | | | 59 |
| 20 | 80 | 20 | 120 | | | | | | | | | | 76 |
| 20 | 78 | 20 | 118 | 3.50 | 2.70 | 2.90 | 11.7 | 46.2 | 42.1 | | | | 132 |
| 20 | 78 | 20 | 118 | 36.40 | 16.40 | 10.55 | 3.0 | 20.2 | 76.8 | | | | 150 |
| 20 | 78 | 20 | 118 | 7.85 | 3.13 | 1.35 | 1.0 | 9.9 | 89.1 | | | | 101 |
| 20 | 78 | 20 | 118 | 1.15 | 1.17 | 1.45 | | 47.2 | 52.0 | | 0.8 | | 99 |
| 20 | 78 | 20 | 118 | 1.95 | 2.06 | 3.20 | 1.3 | 35.7 | 62.6 | | 0.4 | | 103 |
| 20 | 78 | 20 | 118 | 3.90 | 5.93 | 7.50 | 5.1 | 25.5 | 69.1 | 0.3 | | | 132 |
| 20 | 78 | 20 | 118 | 7.60 | 9.73 | 7.25 | 7.7 | 50.0 | 40.1 | 2.2 | | | 140 |
| 20 | 78 | 20 | 118 | 7.25 | 6.73 | 4.80 | 26.2 | 63.7 | 9.2 | 0.8 | | 0.1 | 37 |
| 20 | 78 | 20 | 118 | 3.10 | 4.16 | 3.75 | 8.4 | 80.3 | 9.8 | | 0.42 | 1.1 | 117 |
| 20 | 78 | 20 | 118 | 1.40 | 4.63 | 7.95 | 18.4 | 71.7 | 8.9 | 0.6 | | 0.4 | 139 |
| | 48 | | 48 | | 1.22 | | 59.3 | 28.8 | 11.9 | | | | 60 |
| | 48 | | 48 | | 7.75 | | 4.0 | 79.7 | 13.8 | 2.5 | | | — |
| | 48 | | 48 | | 2.56 | | 3.3 | 53.6 | 18.7 | 24.4 | | | 70 |
| 20 | 78 | 20 | 118 | 0.80 | 1.47 | 1.35 | 47.5 | 29.5 | 14.8 | 8.2 | | | 92 |
| | 50 | | 50 | | 0.60 | | 23.3 | 20.0 | 30.0 | 26.7 | | | — |
| 20 | 70 | 20 | 110 | 2.20 | 2.76 | 2.70 | 19.3 | 42.1 | 32.7 | 5.9 | | | 138 |
| 20 | 70 | 20 | 110 | 1.85 | 1.30 | 1.40 | 24.9 | 31.2 | 32.9 | 7.5 | | 3.5 | 133 |
| 20 | 70 | 20 | 110 | 0.05 | 0.16 | 0.05 | 35.7 | 35.7 | 7.2 | 14.2 | | 7.2 | 11 |

## 12. Data on Measurement of Biological Characters of Salmon
(鮭鱒生物学的測定記録)

### I. Measurement of various biological characters
(各種生物学的形質測定)

Specimens were sampled at random from the catch of each mesh size net at every fishing operation. Measurement of biological characters was carried out on board.

Age determination by scale reading was made later by Masanao Osako of the Hokkaido Regional Fisheries Research Laboratory.

Tabulation of data was made by I. Hamai, K. Kyushin and T. Kinoshita of the University.

Abbreviations:

| | |
|---|---|
| Sex, F. | Female |
| M. | Male |
| F. L. | Fork length |
| B. W. | Body weight |
| G. W. | Gonad weight |
| Mesh | Mesh size (1 Sun=3.03 cm) |

Netted body portion: Refer to Fig. 30.

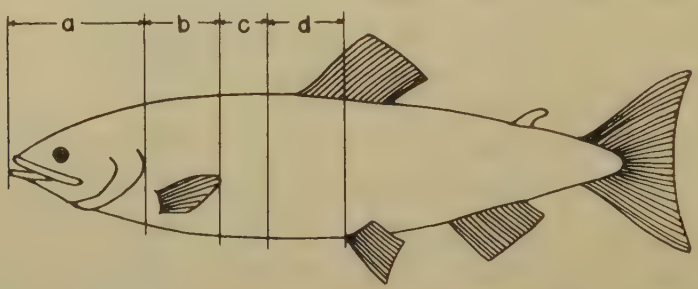



Fig. 30. Division of the fish's body used to describe the portion at which the net tightened around the body

Table 42. Data on measurement of biological characters of salmon in the "Hokusei Maru" cruise 8 (1-4) to the North Pacific and Okhotsk Sea in June-August 1960

I. Cruise 8 (1)

1. Pink salmon, カラフトマス (All 2 years old)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 1 | 4.0 | F | 474 | 1400 | 70 | c |
| | | F | 470 | 1350 | 88 | c |
| | | F | 468 | 1350 | 63 | c |
| | | F | 450 | 1220 | 69 | c |
| | | F | 450 | 1220 | 65 | c |
| | | F | 450 | 930 | 55 | c |
| | | F | 448 | 1260 | 57 | c |
| | | F | 446 | 1220 | 63 | c |
| | | F | 444 | 1180 | 71 | c |
| | | F | 442 | 1180 | 68 | c |
| | | F | 442 | 1100 | 69 | b |
| | | F | 432 | 1170 | 46 | c |
| | | F | 432 | 1050 | 66 | c |
| | | F | 432 | 1050 | 42 | c |
| | | F | 430 | 1100 | 52 | c |
| | | F | 430 | 970 | 52 | — |
| | | F | 428 | 1180 | 73 | b |
| | | F | 416 | 970 | 59 | b |
| | | F | 410 | 1050 | 50 | b |
| | | M | 492 | 1270 | 25 | c |
| | | M | 489 | 1520 | 30 | b |
| | | M | 488 | 1640 | 27 | b |
| | | M | 482 | 1350 | 21 | c |
| | | M | 480 | 1430 | 34 | a |
| | | M | 474 | 1400 | 20 | b |
| | | M | 472 | 1440 | 17 | b |
| | | M | 470 | 1400 | 32 | c |
| | | M | 470 | 1390 | 8 | c |
| | | M | 470 | 1270 | 13 | c |
| | | M | 468 | 1400 | 30 | b |
| | | M | 466 | 1510 | 24 | b |
| | | M | 460 | 1230 | 28 | c |
| | | M | 456 | 1220 | 21 | b |
| | | M | 456 | 1100 | 6 | c |
| | | M | 448 | 1100 | 37 | c |
| | | M | 434 | 1100 | 18 | c |
| | | M | 430 | 1170 | 29 | c |
| 1 | 4.0 | M | 430 | 1100 | 35 | c |
| | | M | 424 | 1400 | 18 | b |
| | | M | 420 | 970 | 17 | c |
| | | M | 420 | 970 | 13 | b |
| | | M | 418 | 1010 | 19 | b |
| | | M | 414 | 1010 | 18 | b |
| 2 | 3.5 | F | 434 | 1100 | 69 | b |
| | | F | 422 | 1000 | 61 | c |
| | | M | 476 | 1400 | 19 | b |
| | | M | 470 | 1400 | 19 | b |
| | | M | 447 | 900 | 30 | b |
| | | M | 442 | 1000 | 16 | b |
| | | M | 424 | 800 | 19 | c |
| | | M | 413 | 1100 | 28 | b |
| | | M | 411 | 1000 | 23 | b |
| | | M | 410 | 800 | 30 | c |
| | 4.0 | F | 478 | 1400 | 78 | c |
| | | F | 460 | 1300 | 97 | b |
| | | F | 458 | 1300 | 78 | c |
| | | F | 458 | 1300 | 63 | c |
| | | F | 458 | 1200 | 69 | c |
| | | F | 454 | 1200 | 43 | b |
| | | F | 450 | 1200 | 65 | b |
| | | F | 448 | 1100 | 51 | c |
| | | F | 440 | 1000 | 63 | c |
| | | M | 512 | 1700 | 46 | b |
| | | M | 492 | 1300 | 30 | b |
| | | M | 490 | 1300 | 9 | c |
| | | M | 478 | 1400 | 34 | b |
| | | M | 478 | 1300 | 17 | c |
| | | M | 470 | 1600 | 60 | b |
| | | M | 470 | 1500 | 24 | b |
| | | M | 468 | 1300 | 24 | c |
| | | M | 464 | 1200 | 19 | c |
| | | M | 456 | 1300 | 25 | c |
| | | M | 456 | 1000 | 6 | c |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 2 | 4.0 | M | 454 | 1200 | 23 | c |
| | | M | 450 | 1200 | 21 | c |
| | | M | 450 | 1200 | 21 | b |
| | | M | 448 | 1300 | 29 | c |
| | | M | 448 | 1300 | 25 | c |
| | | M | 448 | 1200 | 16 | c |
| | | M | 448 | 1100 | 12 | c |
| | | M | 448 | 900 | 16 | c |
| | | M | 446 | 1000 | 13 | c |
| | | M | 444 | 1200 | 14 | c |
| | | M | 444 | 1000 | 29 | c |
| | | M | 442 | 1200 | 22 | c |
| | | M | 442 | 1100 | 19 | c |
| | | M | 440 | 1100 | 11 | c |
| | | M | 432 | 1100 | 26 | c |
| | 4.3 | M | 467 | 1400 | 18 | b |
| | | M | 464 | 1400 | 36 | b |
| | | M | 460 | 1300 | 23 | b |
| | | M | 450 | 1200 | 25 | c |
| | | M | 430 | 1100 | 26 | b |
| 3 | 3.5 | — | 456 | 1100 | — | c |
| | | — | 450 | 1100 | — | c |
| | | — | 446 | 1100 | — | b |
| | | — | 444 | 1000 | — | c |
| | | — | 442 | 1200 | — | b |
| | | — | 440 | 1100 | — | b |
| | | — | 440 | 1100 | — | c |
| | | — | 426 | 1000 | — | c |
| | 4.0 | F | 448 | 1300 | 96 | c |
| | | F | 446 | 1200 | 62 | c |
| | | F | 440 | 1100 | 51 | c |
| | | M | 485 | 1500 | 20 | c |
| | | M | 482 | 1200 | 30 | c |
| | | M | 481 | 1600 | 31 | c |
| | | M | 474 | 1500 | 20 | b |
| | | M | 472 | 1400 | 56 | b |
| | | M | 470 | 1500 | 17 | b |
| | | M | 470 | 1300 | 37 | d |
| | | M | 466 | 1500 | 66 | b |
| | | M | 465 | 1300 | 14 | c |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 3 | 4.0 | M | 462 | 1400 | 36 | b |
| | | M | 462 | 1300 | 14 | c |
| | | M | 461 | 1200 | 15 | c |
| | | M | 460 | 1300 | 47 | b |
| | | M | 454 | 1600 | 18 | c |
| | | M | 450 | 1300 | 53 | c |
| | | M | 450 | 1200 | 32 | c |
| | | M | 450 | 1200 | 24 | c |
| | | M | 450 | 1100 | 25 | c |
| | | M | 446 | 1200 | 36 | c |
| | | M | 445 | 1200 | 19 | c |
| | | M | 445 | 1200 | 9 | c |
| | | M | 440 | 1100 | 73 | d |
| | | M | 440 | 1100 | 46 | a |
| | | M | 440 | 1100 | 17 | d |
| | | M | 432 | 1100 | 13 | c |
| | | M | 430 | 1200 | 36 | c |
| | | M | 426 | 1100 | 21 | b |
| | | — | 450 | 1300 | — | c |
| | | — | 450 | 1200 | — | b |
| | | — | 446 | 1200 | — | c |
| | | — | 445 | 1200 | — | c |
| | | — | 440 | 1100 | — | d |
| | | — | 436 | 1100 | — | d |
| | | — | 410 | 1000 | — | c |
| | 4.3 | — | 496 | 1600 | — | b |
| | | — | 490 | 1500 | — | d |
| | | — | 474 | 1500 | — | c |
| | | — | 460 | 1300 | — | c |
| | | — | 454 | 1200 | — | c |
| 4 | 3.5 | F | 458 | 1200 | 65 | c |
| | | F | 448 | 1100 | 50 | d |
| | | F | 446 | 1200 | 84 | c |
| | | F | 438 | 1100 | 46 | c |
| | | F | 436 | 1200 | 83 | b |
| | | F | 424 | 1000 | 46 | c |
| | | F | 418 | 1000 | 53 | c |
| | | F | 416 | 900 | 32 | c |
| | | M | 494 | 1400 | 22 | b |
| | | M | 482 | 1600 | 32 | b |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 4 | 3.5 | M | 480 | 1400 | 28 | a |
| | | M | 476 | 1400 | 21 | b |
| | | M | 456 | 1300 | 16 | c |
| | | M | 456 | 1200 | 12 | b |
| | | M | 450 | 1200 | 19 | b |
| | | M | 450 | 1100 | 8 | c |
| | | M | 448 | 1100 | 28 | c |
| | | M | 448 | 1100 | 9 | c |
| | | M | 446 | 1200 | 26 | b |
| | | M | 440 | 1100 | 26 | c |
| | | M | 440 | 1100 | 16 | b |
| | | M | 440 | 1000 | 14 | c |
| | | M | 438 | 1000 | 33 | c |
| | | M | 418 | 1000 | 16 | c |
| | | M | 416 | 900 | 8 | d |
| | | M | 414 | 900 | 20 | c |
| | | M | 410 | 1000 | 8 | b |
| | | M | 410 | 900 | 22 | d |
| | | M | 408 | 900 | 9 | c |
| | | M | 400 | 800 | 25 | c |
| | 4.0 | F | 462 | 1200 | 69 | c |
| | | F | 436 | 1100 | 49 | c |
| | | M | 484 | 1500 | 26 | b |
| | | M | 470 | 1300 | 17 | c |
| | | M | 464 | 1300 | 16 | c |
| | | M | 464 | 1300 | 12 | b |
| | | M | 462 | 1200 | 20 | d |
| | | M | 458 | 1200 | 21 | b |
| | | M | 450 | 1200 | 22 | d |
| | | M | 450 | 1100 | 13 | d |
| | | M | 448 | 1200 | 23 | c |
| | | M | 448 | 1200 | 19 | d |
| | | M | 446 | 1100 | 12 | c |
| | | M | 440 | 1200 | 15 | d |
| | | M | 434 | 1200 | 27 | b |
| | | M | 420 | 1000 | 17 | c |
| | 4.3 | M | 482 | 1400 | 17 | d |
| | | M | 470 | 1400 | 11 | c |
| | | M | 460 | 1200 | 26 | c |
| | | M | 458 | 1200 | 18 | d |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 5 | 3.5 | F | 436 | 1100 | 44 | c |
| | | F | 420 | 1000 | 48 | c |
| | | F | 408 | 900 | 47 | b |
| | | M | 434 | 900 | — | c |
| | | — | 456 | 1400 | — | b |
| | | — | 448 | 1200 | — | b |
| | | — | 432 | 1000 | — | c |
| | | — | 427 | 1100 | — | c |
| | | — | 412 | 900 | — | c |
| | | — | 412 | 900 | — | d |
| | | — | 405 | 900 | — | c |
| | | — | 405 | 800 | — | c |
| | | — | 403 | 900 | — | b |
| | 4.0 | — | 502 | 1700 | — | b |
| | | — | 500 | 1800 | — | b |
| | | — | 481 | 1400 | — | c |
| | | — | 476 | 1400 | — | c |
| | | — | 468 | 1400 | — | b |
| | | — | 468 | 1400 | — | c |
| | | — | 461 | 1200 | — | c |
| | | — | 459 | 1400 | — | c |
| | | — | 459 | 1200 | — | c |
| | | — | 459 | 1100 | — | d |
| | | — | 458 | 1200 | — | c |
| | | — | 456 | 1300 | — | c |
| | | — | 452 | 1200 | — | c |
| | | — | 449 | 1300 | — | d |
| | | — | 446 | 1300 | — | c |
| | | — | 446 | 1200 | — | d |
| | | — | 443 | 1100 | — | c |
| | | — | 434 | 1100 | — | d |
| | | — | 432 | 1000 | — | c |
| | | — | 423 | 1400 | — | c |
| | 4.3 | — | 457 | 1400 | — | c |
| | | — | 456 | 1500 | — | c |
| 6 | 4.0 | F | 510 | 2000 | 125 | b |
| | | F | 510 | 1900 | 105 | b |
| | | F | 502 | 1900 | 100 | b |
| | | F | 502 | 1700 | 110 | c |
| | | F | 490 | 1700 | 73 | b |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 6 | 4.0 | F | 489 | 1500 | 74 | c |
| | | F | 481 | 1400 | 75 | c |
| | | F | 480 | 1900 | 89 | c |
| | | F | 480 | 1500 | 87 | b |
| | | F | 480 | 1400 | 57 | c |
| | | F | 472 | 1500 | 81 | b |
| | | F | 472 | 1500 | 79 | c |
| | | F | 472 | 1400 | 54 | b |
| | | F | 472 | 1300 | 90 | c |
| | | F | 471 | 1500 | 74 | c |
| | | F | 471 | 1400 | 91 | c |
| | | F | 469 | 1400 | 64 | b |
| | | F | 468 | 1400 | 42 | c |
| | | F | 462 | 1400 | 83 | d |
| | | F | 462 | 1300 | 83 | c |
| | | F | 461 | 1400 | 57 | b |
| | | F | 461 | 1300 | 76 | b |
| | | F | 461 | 1300 | 63 | c |
| | | F | 460 | 1300 | 84 | d |
| | | F | 459 | 1300 | 76 | c |
| | | F | 458 | 1500 | 30 | b |
| | | F | 454 | 1300 | 90 | b |
| | | F | 452 | 1200 | 57 | d |
| | | F | 450 | 1200 | 88 | d |
| | | F | 450 | 1200 | 66 | d |
| | | F | 449 | 1200 | 64 | c |
| | | F | 449 | 1200 | 62 | d |
| | | F | 444 | 1100 | 49 | d |
| | | F | 443 | 1200 | 75 | c |
| | | F | 440 | 1300 | 60 | d |
| | | F | 439 | 900 | 46 | d |
| | | F | 432 | 1100 | 41 | d |
| | | F | 432 | 1000 | 65 | d |
| | | F | 430 | 1100 | 60 | d |
| | | M | 520 | 1900 | 84 | b |
| | | M | 518 | 1900 | 61 | b |
| | | M | 511 | 1800 | 42 | a |
| | | M | 509 | 1900 | 63 | b |
| | | M | 504 | 1700 | 32 | b |
| | | M | 490 | 1100 | 36 | b |
| | | M | 481 | 1600 | 5 | c |
| 6 | 4.0 | M | 480 | 1500 | 53 | b |
| | | M | 480 | 1500 | 16 | b |
| | | M | 478 | 1300 | 16 | c |
| | | M | 468 | 1300 | 22 | c |
| | | M | 461 | 1300 | 9 | c |
| | | M | 458 | 1300 | 5 | d |
| | | M | 448 | 1000 | 30 | d |

2. Chum salmon, シロサケ

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 1 | 4.0 | F | 576 | 2400 | 140 | a | 5 |
| | | F | 574 | 2490 | 140 | a | 5 |
| | | F | 542 | 2100 | 115 | a | 4 |
| | | F | 534 | 2070 | 83 | a | 4 |
| | | M | 626 | 2700 | 7 | a | 5 |
| | | M | 582 | 2410 | 31 | a | 5 |
| | | M | 566 | 2530 | 21 | a | 5 |
| | | M | 576 | 2320 | 15 | b | 4 |
| | | M | 572 | 2360 | 5 | a | 4 |
| | | M | 570 | 2300 | 34 | a | 4 |
| | | M | 570 | 2230 | 8 | a | 4 |
| | | M | 568 | — | 27 | a | 4 |
| | | M | 565 | 2320 | 10 | b | 4 |
| | | M | 564 | 2360 | 49 | a | 4 |
| | | M | 562 | 2280 | 26 | a | 4 |
| | | M | 576 | 2070 | 28 | a | — |
| | | M | 556 | 2110 | 20 | a | — |
| 2 | 3.5 | F | 570 | 2300 | 101 | a | 4 |
| | | F | 516 | 1600 | 16 | c | 4 |
| | 4.0 | F | 624 | 2700 | 86 | b | 5 |
| | | F | 584 | 2300 | 98 | a | 5 |
| | | F | 582 | 2500 | 26 | a | 5 |
| | | F | 570 | 2100 | 53 | b | 5 |
| | | F | 566 | 2100 | 76 | a | 5 |
| | | F | 560 | 2300 | 45 | a | 5 |
| | | F | 557 | 2200 | 77 | a | 5 |
| | | F | 550 | 2300 | 86 | b | 5 |
| | | F | 540 | 1800 | 33 | b | 5 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 2 | 4.0 | F | 528 | 1600 | 65 | a | 5 |
| | | F | 524 | 1700 | 59 | b | 5 |
| | | F | 524 | 1700 | 28 | b | 5 |
| | | F | 520 | 1400 | 48 | a | 5 |
| | | F | 600 | 2600 | 76 | a | 4 |
| | | F | 598 | 2800 | 22 | a | 4 |
| | | F | 554 | 2000 | 22 | b | 4 |
| | | F | 553 | 2000 | 71 | b | 4 |
| | | F | 550 | 2000 | 20 | b | 4 |
| | | F | 550 | 1900 | 37 | b | 4 |
| | | F | 526 | 2000 | 44 | b | 4 |
| | | F | 526 | 1600 | 17 | b | 4 |
| | | F | 520 | 1750 | 58 | b | 4 |
| | | F | 504 | 2000 | 22 | a | 4 |
| | | F | 522 | 1700 | 13 | b | 3 |
| | | M | 568 | 2400 | 13 | a | 5 |
| | | M | 568 | 2200 | 11 | a | 5 |
| | | M | 557 | 2100 | 9 | a | 5 |
| | | M | 658 | 3800 | 6 | a | 4 |
| | | M | 604 | 3000 | 6 | a | 4 |
| | | M | 586 | 2300 | 5 | a | 4 |
| | | M | 580 | 2400 | 35 | b | 4 |
| | | M | 558 | 1900 | 10 | b | 4 |
| | | M | 556 | 2200 | 12 | a | 4 |
| | | M | 550 | 2000 | 5 | a | 4 |
| | | M | 534 | 1800 | 11 | a | 4 |
| | | M | 528 | 1800 | 10 | b | 4 |
| | | M | 490 | 1600 | 8 | c | 3 |
| | | M | 564 | 2400 | 32 | a | — |
| | 4.3 | F | 610 | 3300 | 110 | a | 5 |
| | | F | 550 | 2000 | 82 | a | 5 |
| | | F | 540 | 1900 | 46 | b | 5 |
| | | F | 554 | 1800 | 34 | b | 4 |
| | | F | 576 | 2300 | 20 | b | — |
| | | M | 610 | 2900 | 29 | a | 4 |
| | | M | 564 | 2200 | 17 | b | 4 |
| | | M | 558 | 1900 | 9 | c | 4 |
| | | M | 548 | 1900 | 14 | c | 4 |
| | | M | 546 | 1700 | 6 | b | 4 |
| 3 | 3.5 | F | 550 | 1900 | 62 | a | 5 |
| | | F | 592 | 2500 | 27 | a | 4 |
| | | F | 542 | 1800 | 18 | a | 4 |
| | | F | 540 | 1900 | 51 | a | 4 |
| | | F | 518 | 1600 | 57 | a | 4 |
| | | F | 514 | 1600 | 12 | a | 3 |
| | | F | 556 | 1900 | 40 | a | — |
| | | F | 544 | 1800 | 39 | a | — |
| | | M | 520 | 1800 | 6 | a | 5 |
| | 4.0 | F | 598 | 2800 | 160 | a | 5 |
| | | F | 580 | 2200 | 52 | b | 5 |
| | | F | 560 | 2600 | 180 | a | 5 |
| | | F | 560 | 2500 | 125 | a | 5 |
| | | F | 558 | 2200 | 175 | b | 5 |
| | | F | 540 | 2500 | 57 | b | 5 |
| | | F | 540 | 2200 | 33 | b | 5 |
| | | F | 536 | 2300 | 110 | a | 5 |
| | | F | 534 | 1800 | 66 | a | 5 |
| | | F | 504 | 1900 | 81 | b | 5 |
| | | F | 600 | 2600 | 23 | a | 4 |
| | | F | 590 | 2600 | 63 | c | 4 |
| | | F | 560 | 2100 | 21 | a | 4 |
| | | F | 550 | 2100 | 98 | b | 4 |
| | | F | 548 | 2200 | 21 | b | 4 |
| | | F | 540 | 1700 | 48 | a | 4 |
| | | F | 532 | 1900 | 34 | b | 4 |
| | | F | 528 | 1900 | 62 | b | 4 |
| | | F | 520 | 1900 | 68 | b | 4 |
| | | F | 492 | 1400 | 27 | a | 4 |
| | | F | 540 | 1800 | 53 | c | — |
| | | F | 536 | 1800 | 80 | a | — |
| | | M | 564 | 2400 | 24 | a | 5 |
| | | M | 542 | 1900 | 4 | b | 5 |
| | | M | 534 | 1900 | 8 | b | 5 |
| | | M | 532 | 2100 | 18 | a | 5 |
| | | M | 602 | 2800 | 12 | a | 4 |
| | | M | 596 | 2500 | 4 | a | 4 |
| | | M | 578 | 2400 | 17 | a | 4 |
| | | M | 554 | 2300 | 25 | a | 4 |
| | | M | 550 | 1900 | 26 | b | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 3 | 4.0 | M | 546 | 2000 | 8 | b | 4 |
| | | M | 542 | 2000 | 8 | a | 4 |
| | | M | 540 | 2100 | 40 | a | 4 |
| | | M | 538 | 2100 | 19 | a | 4 |
| | | M | 536 | 1900 | 49 | a | 4 |
| | | M | 530 | 1700 | 7 | c | 4 |
| | | M | 516 | 1600 | 4 | b | 4 |
| | | M | 510 | 1500 | 8 | b | 4 |
| | | M | 576 | 2300 | 5 | a | — |
| | | M | 570 | 2200 | 89 | a | — |
| | 4.3 | F | 624 | 2700 | 31 | a | 5 |
| | | F | 608 | 2800 | 29 | a | 5 |
| | | F | 598 | 2400 | 30 | b | 5 |
| | | F | 570 | 2500 | 54 | a | 5 |
| | | F | 564 | 2000 | 68 | b | 5 |
| | | F | 536 | 2000 | 89 | b | 5 |
| | | F | 532 | 1900 | 45 | b | 4 |
| | | M | 600 | 2800 | 130 | a | 5 |
| | | M | 582 | 2500 | 29 | a | 5 |
| | | M | 574 | 2100 | 5 | a | 5 |
| | | M | 512 | 1600 | 12 | a | 5 |
| | | M | 604 | 2400 | 4 | b | 4 |
| | | M | 572 | 2900 | 13 | a | 4 |
| | | M | 566 | 2500 | 15 | b | 4 |
| | | M | 530 | 1900 | 26 | a | 4 |
| | | M | 528 | 1700 | 10 | a | 4 |
| | | M | 538 | 1700 | 2 | c | 3 |
| 4 | 3.5 | F | 554 | 2100 | 88 | a | 4 |
| | | F | 512 | 1900 | 101 | a | 4 |
| | | M | 590 | 2400 | 7 | a | 5 |
| | | M | 586 | 2400 | 13 | a | 5 |
| | | M | 634 | 3200 | 20 | a | 4 |
| | | M | 566 | 2600 | 29 | a | — |
| | 4.0 | F | 592 | 2600 | 56 | a | 5 |
| | | F | 570 | 2100 | 47 | b | 5 |
| | | F | 566 | 2500 | 105 | a | 5 |
| | | F | 562 | 2000 | 54 | b | 5 |
| | | F | 558 | — | 73 | b | 5 |
| | | F | 556 | 2000 | 150 | b | 5 |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 4 | 4.0 | F | 604 | 2800 | 27 | b | 4 |
| | | F | 584 | 2400 | 23 | a | 4 |
| | | F | 566 | 2200 | 32 | a | 4 |
| | | F | 560 | 2000 | 28 | a | 4 |
| | | F | 544 | 1900 | 22 | b | 4 |
| | | F | 544 | 1900 | 21 | b | 4 |
| | | F | 522 | 1600 | 17 | b | 4 |
| | | F | 584 | 2800 | 175 | a | — |
| | | F | 578 | 2500 | 105 | a | — |
| | | F | 526 | 1500 | 16 | b | — |
| | | M | 620 | 2600 | 16 | a | 5 |
| | | M | 598 | 2800 | 32 | a | 5 |
| | | M | 582 | 2300 | 13 | a | 5 |
| | | M | 576 | 2500 | 58 | a | 5 |
| | | M | 576 | 2200 | 12 | b | 5 |
| | | M | 564 | 2200 | 5 | a | 5 |
| | | M | 560 | 2000 | 11 | a | 5 |
| | | M | 554 | 2000 | 16 | a | 5 |
| | | M | 606 | 3000 | 94 | a | 4 |
| | | M | 600 | 2300 | 27 | a | 4 |
| | | M | 594 | 2500 | 34 | a | 4 |
| | | M | 592 | 2400 | 6 | b | 4 |
| | | M | 532 | 1800 | 6 | b | 4 |
| | | M | 580 | 2300 | 35 | a | — |
| | 4.3 | F | 606 | 2800 | 135 | b | 5 |
| | | F | 590 | 2500 | 52 | b | 5 |
| | | F | 582 | 2300 | 77 | d | 5 |
| | | F | 570 | 2400 | 92 | b | 5 |
| | | F | 550 | 2300 | 20 | c | 5 |
| | | F | 544 | 2000 | 85 | a | 5 |
| | | F | 542 | 1800 | 17 | b | 5 |
| | | F | 572 | 2500 | 30 | b | 4 |
| | | F | 570 | 2400 | 28 | b | 4 |
| | | F | 570 | 2300 | 120 | a | 4 |
| | | F | 570 | 2100 | 110 | c | 4 |
| | | F | 558 | 2200 | 24 | b | 4 |
| | | F | 550 | 1900 | 72 | d | 4 |
| | | F | 542 | 2200 | 33 | b | 4 |
| | | F | 540 | 1700 | 66 | b | 4 |
| | | F | 536 | 1600 | 75 | b | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 4 | 4.3 | F | 524 | 1800 | 15 | c | 3 |
| | | F | 594 | 2600 | 120 | b | — |
| | | M | 586 | 2600 | 9 | c | 5 |
| | | M | 580 | 2300 | 24 | b | 5 |
| | | M | 580 | 2300 | 20 | a | 5 |
| | | M | 648 | 3200 | 9 | a | 4 |
| | | M | 560 | 2100 | 38 | a | 4 |
| | | M | 536 | 2100 | 34 | b | 4 |
| | | M | 666 | 3100 | 15 | a | — |
| 5 | 3.5 | F | 590 | 2500 | 34 | a | 4 |
| | | F | 574 | 2300 | 78 | a | 4 |
| | | F | 552 | 2500 | 105 | a | 4 |
| | | M | 564 | 2100 | 15 | a | — |
| | 4.0 | F | 590 | 2500 | 25 | a | 5 |
| | | F | 582 | 2300 | 95 | b | 5 |
| | | F | 642 | 3200 | 32 | a | 4 |
| | | F | 603 | 2700 | 34 | a | 4 |
| | | F | 600 | 2300 | 87 | b | 4 |
| | | F | 594 | 2600 | 29 | a | 4 |
| | | F | 583 | 2700 | 28 | a | 4 |
| | | F | 583 | 2200 | 50 | a | 4 |
| | | F | 582 | 2700 | 25 | a | 4 |
| | | F | 574 | 2500 | 160 | a | 4 |
| | | F | 567 | 2200 | 29 | b | 4 |
| | | F | 561 | 2200 | 190 | b | 4 |
| | | F | 561 | 1800 | 31 | b | 4 |
| | | F | 559 | 2200 | 130 | b | 4 |
| | | F | 557 | 2400 | 100 | a | 4 |
| | | F | 554 | 2100 | 20 | b | 4 |
| | | F | 553 | 2700 | 44 | a | 4 |
| | | F | 550 | 2300 | 26 | a | 4 |
| | | F | 527 | 1700 | 55 | b | 4 |
| | | F | 524 | 1700 | 30 | c | 3 |
| | | F | 594 | 2400 | 71 | a | — |
| | | F | 579 | 2300 | 24 | a | — |
| | | F | 578 | 2300 | 25 | b | — |
| | | M | 600 | 2500 | 16 | b | 5 |
| | | M | 592 | 2600 | 23 | a | 5 |
| | | M | 584 | 2500 | 38 | a | 5 |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 5 | 4.0 | M | 581 | 2400 | 8 | a | 5 |
| | | M | 559 | 2400 | 9 | a | 5 |
| | | M | 624 | 2800 | — | a | 4 |
| | | M | 602 | 2600 | 7 | a | 4 |
| | | M | 600 | 2400 | 4 | a | 4 |
| | | M | 593 | 2400 | 5 | a | 4 |
| | | M | 581 | 2600 | 13 | a | 4 |
| | | M | 558 | 2000 | 7 | b | 4 |
| | | M | 554 | 2400 | 14 | a | 4 |
| | | M | 554 | 2000 | 72 | b | 4 |
| | | M | 553 | 2300 | 15 | a | 4 |
| | | M | 543 | 2200 | 32 | a | 4 |
| | | M | 543 | 2000 | 6 | b | 4 |
| | | M | 541 | 1800 | 18 | c | 4 |
| | | M | 595 | 2700 | 25 | a | — |
| | | M | 593 | 2600 | 7 | a | — |
| | | M | 579 | 2300 | 31 | a | — |
| | | M | 578 | 2400 | 9 | b | — |
| | | M | 575 | 2000 | 5 | b | — |
| | 4.3 | F | 648 | 3700 | 130 | a | 5 |
| | | F | 579 | 2500 | 89 | b | 5 |
| | | F | 572 | 2500 | 115 | b | 5 |
| | | F | 556 | 2200 | 100 | c | 4 |
| | | M | 624 | 3000 | 31 | b | 4 |
| | | M | 594 | 2500 | 7 | b | 4 |
| | | M | 586 | 2900 | 81 | b | 4 |
| 6 | 4.0 | F | 588 | 2600 | 25 | a | 4 |
| | | F | 559 | 2300 | 30 | a | 4 |
| | | M | 556 | 2400 | 36 | — | 5 |
| | | M | 600 | 3300 | 58 | a | 4 |
| | | M | 590 | 2200 | 3 | b | 4 |
| | | M | 640 | 2800 | 3 | a | — |

Table 42. (Continued)

II. Cruise 8 (2)

1. Pink salmon, カラフトマス (All 2 years old)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 7 | ? | F | 454 | 1200 | 65 | — |
| | | F | 451 | 1150 | 77 | c |
| | | F | 450 | 1250 | 70 | c |
| | | F | 448 | 1200 | 95 | c |
| | | F | 448 | 1100 | 59 | — |
| | | F | 446 | 1200 | 44 | d |
| | | F | 444 | 1100 | 80 | c |
| | | F | 442 | 1150 | 84 | — |
| | | F | 441 | 1100 | 74 | c |
| | | F | 441 | 1000 | 67 | — |
| | | F | 439 | 1100 | 70 | — |
| | | F | 436 | 1100 | 77 | — |
| | | F | 430 | 1100 | 62 | d |
| | | F | 430 | 1000 | 65 | d |
| | | F | 428 | 1000 | 65 | — |
| | | F | 428 | 1000 | 55 | — |
| | | F | 428 | 950 | 72 | d |
| | | F | 425 | 1100 | 60 | — |
| | | F | 425 | 1000 | 63 | — |
| | | F | 424 | 1050 | 54 | b |
| | | F | 424 | 1000 | 58 | — |
| | | F | 424 | 900 | 61 | c |
| | | F | 423 | 850 | 53 | — |
| | | F | 421 | 1000 | 64 | d |
| | | F | 417 | 1050 | 43 | — |
| | | F | 416 | 950 | 60 | — |
| | | F | 415 | 1050 | 65 | d |
| | | F | 412 | 900 | 55 | — |
| | | M | 487 | 1400 | 13 | b |
| | | M | 486 | 1300 | 8 | — |
| | | M | 468 | 1300 | 58 | b |
| | | M | 467 | 1350 | 29 | — |
| | | M | 466 | 1200 | 36 | c |
| | | M | 460 | 1350 | 27 | b |
| | | M | 460 | 1200 | 15 | d |
| | | M | 457 | 1100 | 19 | c |
| | | M | 455 | 1150 | 14 | — |
| | | M | 452 | 1150 | 30 | c |
| | | M | 446 | 1100 | 22 | — |
| 7 | ? | M | 441 | 1100 | 56 | b |
| | | M | 438 | 1150 | 23 | d |
| | | M | 437 | 1100 | 48 | d |
| | | M | 430 | 1000 | 32 | b |
| | | M | 429 | 1250 | 25 | — |
| | | M | 429 | 1100 | 32 | — |
| | | M | 428 | 950 | 31 | c |
| | | M | 425 | 1050 | 27 | — |
| | | M | 415 | 900 | 34 | — |
| | | M | 406 | 1000 | 4 | — |
| | | — | 452 | 1050 | 11 | b |
| 8 | 3.5 | F | 456 | 1250 | 46 | b |
| | | F | 446 | 1000 | 55 | d |
| | | F | 437 | 950 | 29 | c |
| | | F | 436 | 1000 | 55 | c |
| | | F | 432 | 1150 | 76 | c |
| | | F | 428 | 1050 | 71 | c |
| | | F | 428 | 1000 | 68 | c |
| | | F | 420 | 1050 | 63 | c |
| | | F | 420 | 1000 | 64 | c |
| | | F | 420 | 900 | 66 | c |
| | | F | 418 | 950 | 58 | d |
| | | F | 416 | 900 | 76 | d |
| | | F | 408 | 900 | 59 | c |
| | | F | 406 | 900 | 63 | c |
| | | M | 468 | 1150 | 9 | b |
| | | M | 460 | 1350 | 50 | b |
| | | M | 456 | 1100 | 53 | b |
| | | M | 440 | 1100 | 13 | b |
| | | M | 418 | 900 | 20 | c |
| | | M | 412 | 1000 | 30 | c |
| | | M | 412 | 900 | 59 | c |
| | | — | 460 | 1300 | 54 | c |
| | 4.0 | F | 486 | 1550 | 110 | c |
| | | F | 450 | 1300 | 72 | b |
| | | F | 448 | 1150 | 72 | b |
| | | F | 443 | 1150 | 99 | c |
| | | F | 440 | 1150 | 85 | c |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 8 | 4.0 | F | 439 | 1100 | 79 | c |
| | | F | 437 | 1150 | 74 | c |
| | | F | 436 | 1100 | 75 | c |
| | | F | 436 | 1100 | 47 | d |
| | | F | 428 | 1050 | 71 | c |
| | | F | 424 | 1100 | 77 | d |
| | | F | 418 | 1050 | 62 | b |
| | | M | 468 | 1250 | 12 | c |
| | | M | 462 | 1250 | 48 | b |
| | | M | 460 | 1250 | 21 | c |
| | | M | 452 | 1150 | 40 | c |
| | | M | 448 | 1050 | 24 | c |
| | | M | 442 | 1150 | 56 | c |
| | | M | 438 | 1100 | 33 | c |
| | | M | 437 | 1050 | 40 | c |
| | | M | 434 | 1050 | 35 | d |
| | | M | 432 | 1100 | 33 | c |
| | | M | 425 | 1050 | 37 | c |
| | | M | 418 | 1000 | 49 | c |
| | 4.3 | F | 426 | 1150 | 66 | c |
| | | F | 426 | 1050 | 75 | c |
| | | M | 452 | 1450 | 82 | c |
| | | M | 452 | 1300 | 24 | c |
| 9 | 3.5 | F | 443 | 1150 | 112 | c |
| | | F | 443 | 1000 | 54 | b |
| | | F | 442 | 1050 | 70 | c |
| | | F | 441 | 950 | 62 | c |
| | | F | 439 | 1050 | 72 | c |
| | | F | 439 | 1000 | 66 | d |
| | | F | 439 | 950 | 61 | b |
| | | F | 435 | 1100 | 37 | d |
| | | F | 429 | 1000 | 68 | b |
| | | F | 426 | 1000 | 72 | c |
| | | F | 424 | 1000 | 59 | d |
| | | F | 423 | 1000 | 61 | b |
| | | F | 422 | 950 | 64 | d |
| | | F | 418 | 900 | 59 | a |
| | | M | 486 | 1500 | 45 | a |
| | | M | 470 | 1400 | 62 | a |
| | | M | 454 | 1050 | 29 | c |
| 9 | 3.5 | M | 447 | 1050 | 39 | c |
| | | M | 436 | 1000 | 35 | b |
| | | M | 423 | 950 | 53 | c |
| | 4.0 | F | 466 | 1200 | 75 | d |
| | | F | 439 | 1000 | 70 | d |
| | | M | 511 | 1800 | 55 | b |
| | | M | 491 | 1550 | 46 | b |
| | | M | 479 | 1500 | 50 | b |
| | | M | 474 | 1450 | 78 | c |
| | | M | 473 | 1250 | 70 | c |
| | | M | 463 | 1350 | 40 | c |
| | | M | 459 | 1400 | 65 | b |
| | | M | 457 | 1200 | 57 | d |
| | | M | 455 | 1300 | 57 | b |
| | | M | 452 | 1100 | 17 | c |
| | | M | 450 | 1150 | 27 | d |
| | | M | 450 | 1050 | 37 | d |
| | | M | 445 | 1100 | 29 | d |
| | | M | 441 | 1100 | 48 | b |
| | | M | 423 | 900 | 19 | b |
| | | M | 421 | 950 | 25 | d |
| | | M | 421 | 950 | 17 | d |
| | | M | 412 | 900 | 16 | d |
| | 4.3 | F | 473 | 1400 | 95 | c |
| | | F | 468 | 1450 | 92 | d |
| | | F | 463 | 1350 | 81 | d |
| | | M | 491 | 1700 | 59 | b |
| | | M | 476 | 1450 | 50 | c |
| | | M | 475 | 1500 | 70 | c |
| | | M | 466 | 1450 | 44 | b |
| | | M | 466 | 1300 | 41 | d |
| | | M | 461 | 1400 | 50 | b |
| | | M | 446 | 1200 | 19 | d |
| 10 | 3.5 | F | 447 | 1200 | 92 | c |
| | | F | 447 | 1150 | 80 | — |
| | | F | 446 | 1250 | 85 | c |
| | | F | 445 | 950 | 79 | b |
| | | F | 440 | 1050 | 89 | d |
| | | F | 433 | 1000 | 64 | b |
| | | F | 432 | 850 | 65 | c |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 10 | 3.5 | F | 428 | 1000 | 75 | b |
| | | F | 423 | 800 | 65 | c |
| | | F | 420 | 900 | 65 | c |
| | | F | 412 | 850 | 65 | c |
| | | M | 499 | 1550 | 55 | a |
| | | M | 498 | 1700 | 79 | a |
| | | M | 495 | 1400 | 66 | a |
| | 4.0 | F | 488 | 1300 | 52 | c |
| | | F | 487 | 1650 | 125 | b |
| | | F | 486 | 1500 | 100 | d |
| | | F | 477 | 1470 | 97 | c |
| | | F | 462 | 1300 | 95 | c |
| | | F | 454 | 1700 | 83 | d |
| | | F | 450 | 1150 | 90 | c |
| | | F | 449 | 1060 | 80 | d |
| | | F | 445 | 1100 | 61 | c |
| | | F | 436 | 1020 | 95 | d |
| | | F | 430 | 1050 | 60 | d |
| | | F | 428 | 1000 | 77 | d |
| | | M | 485 | 1400 | 50 | c |
| | | M | 480 | 1550 | 75 | b |
| | | M | 479 | 1300 | 15 | b |
| | | M | 478 | 1700 | 83 | b |
| | | M | 478 | 1280 | 29 | b |
| | | M | 464 | 1250 | 12 | c |
| | | M | 463 | 1150 | 16 | d |
| | | M | 458 | 1150 | 62 | c |
| | | M | 452 | 1250 | 47 | c |
| | | M | 450 | 1250 | 40 | c |
| | | M | 450 | 1150 | 45 | d |
| | | M | 449 | 1050 | 44 | c |
| | | M | 441 | 1100 | 31 | d |
| | | M | 440 | 1250 | 81 | b |
| | | — | 456 | 1100 | 35 | d |
| | | — | 453 | 1200 | 40 | c |
| | | — | 445 | 1150 | 73 | c |
| | | — | 431 | 1100 | 65 | d |
| | 4.3 | F | 475 | 1400 | 112 | c |
| | | M | 510 | 2000 | 105 | a |
| | | M | 482 | 1150 | 38 | c |
| | | M | 476 | 1500 | 43 | a |
| | | M | 472 | 1100 | 21 | d |
| | | M | 448 | 1250 | 58 | c |

2. Chum salmon, シロサケ

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 7 | ? | F | 547 | 2700 | 87 | a | 5 |
| | | F | 528 | 2050 | 99 | b | 5 |
| | | F | 597 | 2900 | 137 | b | 4 |
| | | F | 547 | 2350 | 100 | b | 4 |
| | | F | 545 | 2350 | 110 | a | 4 |
| | | F | 536 | 3000 | 51 | b | 4 |
| | | F | 532 | 1850 | 37 | a | 4 |
| | | F | 531 | 2000 | 93 | c | 4 |
| | | F | 509 | 1850 | 90 | b | 4 |
| | | F | 504 | 1700 | 47 | b | 4 |
| | | F | 502 | 1600 | 67 | b | 4 |
| | | M | 582 | 3700 | 128 | a | 5 |
| | | M | 547 | 2050 | 24 | b | 4 |
| | | M | 512 | 1800 | 14 | b | 4 |
| | | M | 500 | 1600 | 22 | b | 3 |
| 8 | 3.5 | F | 542 | 2150 | 41 | b | 4 |
| | | F | 530 | 1900 | 41 | c | 4 |
| | | F | 518 | 1750 | 55 | c | — |
| | | M | 572 | 2300 | 27 | b | 5 |
| | | M | 558 | 2150 | 19 | b | 4 |
| | 4.0 | F | 548 | 2200 | 73 | a | 5 |
| | | F | 540 | 2100 | 130 | b | 5 |
| | | F | 540 | 1850 | 91 | c | 5 |
| | | F | 532 | 1850 | 33 | b | 5 |
| | | F | 568 | 2750 | 230 | a | 4 |
| | | F | 563 | 2400 | 63 | a | 4 |
| | | F | 558 | 2350 | 68 | a | 4 |
| | | F | 552 | 2250 | 54 | a | 4 |
| | | F | 552 | 2200 | 67 | a | 4 |
| | | F | 548 | 2150 | 41 | a | 4 |
| | | F | 536 | 2200 | 105 | b | 4 |
| | | F | 535 | 2000 | 64 | b | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 8 | 4.0 | F | 535 | 1850 | 60 | b | 4 |
| | | F | 525 | 1700 | 140 | c | 4 |
| | | F | 520 | 1800 | 58 | b | 4 |
| | | F | 510 | 1750 | 59 | b | 4 |
| | | F | 508 | 1550 | 80 | c | 4 |
| | | F | 590 | 2650 | 103 | a | — |
| | | F | 540 | 2100 | 65 | b | — |
| | | F | 538 | 1850 | 70 | b | — |
| | | F | 514 | 1600 | 91 | b | — |
| | | M | 596 | 2750 | 72 | a | 5 |
| | | M | 578 | 2800 | 90 | a | 5 |
| | | M | 530 | 1950 | 24 | b | 5 |
| | | M | 511 | 1700 | 7 | b | 5 |
| | | M | 696 | 2650 | 71 | a | 4 |
| | | M | 580 | 2600 | 86 | a | 4 |
| | | M | 570 | 2100 | 23 | a | 4 |
| | | M | 530 | 1850 | 68 | a | 4 |
| | | M | 530 | 1650 | 1 | b | 4 |
| | | M | 520 | 1950 | 19 | b | 4 |
| | | M | 518 | 1700 | 8 | b | 4 |
| | | M | 510 | 1700 | 10 | b | 4 |
| | | M | 505 | 1700 | 2 | c | 4 |
| | | M | 512 | 1800 | 35 | b | 3 |
| | 4.3 | F | 548 | 2250 | 79 | b | 5 |
| | | F | 550 | 2050 | 48 | a | 4 |
| | | F | 500 | 1450 | 43 | b | 3 |
| | | F | 534 | 2150 | 96 | a | — |
| | | M | 590 | 2750 | 45 | a | 4 |
| | | M | 554 | 2350 | 20 | a | 4 |
| | | M | 525 | 2050 | 11 | a | 4 |
| | | M | 522 | 1950 | 13 | b | 4 |
| | | M | 495 | 1450 | 17 | c | 4 |
| | | M | 485 | 1550 | 11 | b | 4 |
| 9 | 3.5 | F | 614 | 2800 | 58 | a | 5 |
| | | F | 585 | 2700 | 195 | a | 5 |
| | | F | 559 | 1900 | 80 | a | 4 |
| | | F | 545 | 1900 | 36 | a | 4 |
| | | F | 541 | 2050 | 78 | a | 4 |
| | | F | 538 | 2000 | 45 | a | 4 |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 9 | 3.5 | F | 530 | 1800 | 54 | a | 4 |
| | | F | 544 | 2100 | 44 | b | — |
| | | M | 549 | 2100 | 77 | a | 4 |
| | | — | 579 | 2300 | 35 | a | 5 |
| | 4.0 | F | 631 | 2650 | 65 | a | 5 |
| | | F | 605 | 2800 | 265 | a | 5 |
| | | F | 573 | 2700 | 165 | a | 5 |
| | | F | 562 | 2000 | 62 | b | 5 |
| | | F | 558 | 1700 | 40 | a | 5 |
| | | F | 556 | 2500 | 142 | a | 5 |
| | | F | 549 | 2000 | 50 | a | 5 |
| | | F | 608 | 2700 | 76 | a | 4 |
| | | F | 603 | 2500 | 98 | a | 4 |
| | | F | 586 | 2650 | 77 | b | 4 |
| | | F | 583 | 2400 | 69 | a | 4 |
| | | F | 562 | 2550 | 94 | a | 4 |
| | | F | 552 | 2100 | 48 | b | 4 |
| | | F | 548 | 2200 | 75 | b | 4 |
| | | F | 537 | 2000 | 60 | a | 4 |
| | | F | 531 | 1700 | 120 | b | 4 |
| | | F | 517 | 1750 | 75 | b | 4 |
| | | F | 511 | 1700 | 39 | b | 4 |
| | | F | 509 | 1750 | 54 | a | 4 |
| | | F | 551 | 2500 | 125 | a | — |
| | | M | 600 | 2900 | 157 | a | 5 |
| | | M | 586 | 2650 | 36 | a | 5 |
| | | M | 562 | 2050 | 15 | a | 4 |
| | | M | 561 | 2250 | 35 | a | 4 |
| | | M | 543 | 1900 | 19 | a | 4 |
| | | M | 534 | 1600 | 1 | d | 4 |
| | | M | 514 | 1850 | 30 | a | 4 |
| | | M | 514 | 1700 | 25 | a | 4 |
| | | M | 504 | 1600 | 21 | d | 4 |
| | | M | 502 | 1550 | 18 | b | 4 |
| | 4.3 | F | 581 | 2450 | 155 | b | 5 |
| | | F | 547 | 1900 | 44 | b | 5 |
| | | F | 548 | 2200 | 35 | a | 4 |
| | | F | 541 | 2300 | 64 | a | 4 |
| | | F | 539 | 1900 | 97 | b | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 9 | 4.3 | F | 531 | 1950 | 38 | b | 4 |
| | | F | 530 | 2150 | 39 | b | 4 |
| | | F | 528 | 1950 | 53 | b | 4 |
| | | F | 520 | 1650 | 48 | d | 4 |
| | | M | 545 | 2050 | 17 | b | 4 |
| 10 | 3.5 | F | 600 | 2900 | 150 | a | 5 |
| | | F | 577 | 2300 | 120 | a | 5 |
| | | M | 554 | 2350 | 20 | a | 4 |
| | | — | 508 | 1500 | 35 | b | 4 |
| | 4.0 | F | 608 | 2300 | 130 | b | 5 |
| | | F | 598 | 2300 | 175 | a | 5 |
| | | F | 590 | 2950 | 195 | a | 5 |
| | | F | 586 | 2600 | 107 | a | 5 |
| | | F | 576 | 2650 | 125 | a | 5 |
| | | F | 570 | 2600 | 160 | a | 5 |
| | | F | 570 | 2250 | 145 | a | 5 |
| | | F | 560 | 1800 | 150 | a | 5 |
| | | F | 558 | 2250 | 60 | a | 5 |
| | | F | 582 | 2750 | 107 | a | 4 |
| | | F | 576 | 2300 | 64 | b | 4 |
| | | F | 574 | 2250 | 25 | a | 4 |
| | | F | 554 | 2450 | 115 | a | 4 |
| | | F | 554 | 1150 | 175 | b | 4 |
| | | F | 550 | 2000 | 160 | b | 4 |
| | | F | 546 | 1600 | 49 | c | 4 |
| | | F | 542 | 2150 | 78 | b | 4 |
| | | F | 542 | 2100 | 68 | b | 4 |
| | | F | 537 | 1900 | 78 | b | 4 |
| | | F | 536 | 2050 | 74 | b | 4 |
| | | F | 524 | 1950 | 99 | b | 4 |
| | | F | 524 | 1650 | 35 | b | 4 |
| | | F | 508 | 1950 | 110 | b | 4 |
| | | F | 508 | 1650 | 87 | b | 4 |
| | | F | 495 | 1550 | 40 | b | 4 |
| | | F | 610 | 2950 | 128 | a | — |
| | | M | 586 | 2500 | 21 | a | 5 |
| | | M | 580 | 2750 | 173 | a | 5 |
| | | M | 556 | 1900 | 28 | b | 5 |
| | | M | 596 | 3150 | 70 | a | 4 |
| 10 | 4.0 | M | 582 | 2700 | 36 | a | 4 |
| | | M | 580 | 2450 | 1 | a | 4 |
| | | M | 562 | 2350 | 48 | a | 4 |
| | | M | 540 | 2250 | 25 | a | 4 |
| | | M | 531 | 1600 | 24 | b | 4 |
| | | M | 548 | 2150 | 64 | a | 3 |
| | | M | 525 | 1500 | 1 | c | 3 |
| | 4.3 | F | 562 | 2500 | 100 | b | 5 |
| | | F | 580 | 2700 | 185 | a | 4 |
| | | F | 548 | 2050 | 95 | b | 4 |
| | | M | 552 | 2300 | 20 | b | 4 |

3. Sockeye salmon, ベニサケ

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 7 | ? | F | 595 | 2850 | 105 | b | $6_3$ |
| | | F | 540 | 2450 | 235 | b | $5_2$ |
| | | F | 522 | 1800 | 55 | b | $5_3$ |
| | | F | 504 | 1700 | 34 | b | $5_3$ |
| | | F | 504 | 1500 | 128 | b | $4_2$ |
| | | F | 577 | 2800 | 138 | c | — |
| | | F | 573 | 2700 | 82 | b | — |
| | | M | 561 | 2600 | 11 | b | $7_4$ |
| | | M | 610 | 3600 | 43 | a | $6_3$ |
| | | M | 602 | 3300 | 28 | b | $5_2$ |
| | | M | 551 | 2300 | 17 | b | $5_3$ |
| 8 | 3.5 | F | 596 | 3550 | 140 | a | $6_3$ |
| | | F | 568 | 3300 | 78 | a | $6_3$ |
| | | F | 565 | 2500 | 102 | a | $5_2$ |
| | | M | 587 | 2500 | 26 | a | $6_3$ |
| | | M | 538 | 2000 | 16 | a | $4_2$ |
| | 4.0 | F | 604 | 3000 | 135 | a | $6_3$ |
| | | F | 590 | 2750 | 89 | a | $6_3$ |
| | | F | 590 | 2700 | 93 | a | $6_3$ |
| | | F | 598 | 3200 | 110 | a | $5_2$ |
| | | F | 584 | 2500 | 130 | a | $5_2$ |
| | | F | 503 | 2700 | 64 | c | $5_3$ |
| | | F | 583 | 2650 | 140 | a | — |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 8 | 4.0 | M | 687 | 4300 | 41 | a | $6_3$ |
| | | M | 585 | 2650 | 63 | a | $6_3$ |
| | | M | 580 | 2600 | 57 | a | $6_3$ |
| | | M | 532 | 1800 | 31 | b | $6_4$ |
| | | M | 614 | 3300 | 37 | a | $5_2$ |
| | | M | 613 | 3700 | 42 | a | $5_2$ |
| | | M | 565 | 3450 | 25 | a | $5_3$ |
| | | M | 515 | 2700 | 42 | b | $5_3$ |
| | 4.3 | F | 604 | 2800 | 103 | a | $6_3$ |
| | | F | 588 | 2750 | 83 | a | $6_3$ |
| | | F | 581 | 2700 | 99 | a | $6_3$ |
| | | F | 582 | 2700 | 84 | a | $5_2$ |
| | | F | 575 | 3000 | 120 | a | $5_2$ |
| | | F | 582 | 2500 | 135 | b | — |
| | | M | 585 | 2550 | 92 | a | $6_3$ |
| | | M | 575 | 2500 | 78 | a | $6_3$ |
| | | M | 555 | 2200 | 67 | a | $6_3$ |
| | | M | 617 | 3500 | 45 | a | $5_2$ |
| | | M | 615 | 3300 | 40 | a | $5_2$ |
| | | M | 545 | 2500 | 47 | a | — |
| 9 | 3.5 | F | 602 | 2800 | 115 | a | $6_3$ |
| | | F | 504 | 1650 | 95 | c | $6_4$ |
| | | F | 507 | 1800 | 81 | a | — |
| | | M | 599 | 2950 | 22 | a | $5_2$ |
| | | — | 521 | 1600 | 70 | b | $5_3$ |
| | 4.0 | F | 620 | 3250 | 115 | a | $6_3$ |
| | | F | 609 | 3000 | 93 | b | $6_3$ |
| | | F | 609 | 2850 | 98 | a | $6_3$ |
| | | F | 597 | 2800 | 89 | a | $6_3$ |
| | | F | 595 | 2750 | 92 | a | $6_3$ |
| | | F | 591 | 2500 | 76 | a | $6_3$ |
| | | F | 589 | 2700 | 105 | a | $6_3$ |
| | | F | 584 | 2550 | 100 | a | $6_3$ |
| | | F | 583 | 2500 | 108 | a | $6_3$ |
| | | F | 579 | 2600 | 101 | a | $6_3$ |
| | | F | 575 | 2250 | 120 | b | $6_3$ |
| | | F | 567 | 2250 | 90 | b | $6_3$ |
| | | F | 561 | 2300 | 92 | b | $6_3$ |
| | | F | 586 | 2650 | 128 | a | $5_2$ |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 9 | 4.0 | F | 571 | 2500 | 74 | b | $5_2$ |
| | | F | 540 | 2300 | 110 | a | $5_2$ |
| | | F | 539 | 2300 | 86 | a | $5_3$ |
| | | F | 518 | 1750 | 75 | b | $5_3$ |
| | | F | 510 | 1650 | 92 | c | $5_3$ |
| | | F | 601 | 3050 | 116 | a | — |
| | | F | 583 | 2850 | 100 | a | — |
| | | F | 558 | 2350 | 121 | b | — |
| | | M | 602 | 2800 | 74 | a | $7_4$ |
| | | M | 669 | 3850 | 56 | a | $6_3$ |
| | | M | 630 | 3250 | 20 | a | $6_3$ |
| | | M | 624 | 3100 | 35 | a | $6_3$ |
| | | M | 624 | 3050 | 54 | a | $6_3$ |
| | | M | 622 | 2850 | 17 | a | $6_3$ |
| | | M | 620 | 3000 | 27 | a | $6_3$ |
| | | M | 615 | 2900 | 18 | a | $6_3$ |
| | | M | 592 | 2500 | 31 | a | $6_3$ |
| | | M | 575 | 2700 | 15 | a | $6_3$ |
| | | M | 508 | 1700 | 52 | b | $6_4$ |
| | | M | 636 | 3000 | 36 | a | $5_2$ |
| | | M | 615 | 3100 | 42 | a | $5_2$ |
| | | M | 611 | 2950 | 33 | a | $5_2$ |
| | | M | 526 | 1850 | 11 | b | $5_3$ |
| | | M | 527 | 1850 | 18 | b | $4_2$ |
| | | M | 630 | 3500 | 34 | a | — |
| | | — | 546 | 2450 | 66 | a | $6_3$ |
| | 4.5 | F | 572 | 2550 | 120 | b | $6_3$ |
| | | F | 574 | 2550 | 135 | b | $5_2$ |
| | | M | 641 | 3300 | 49 | a | $7_4$ |
| | | M | 617 | 2850 | 28 | a | $6_3$ |
| | | M | 627 | 3300 | 28 | a | — |
| 10 | 4.0 | F | 562 | 2250 | 144 | a | $5_2$ |
| | | M | 514 | 1600 | 21 | b | $6_4$ |
| | | M | 528 | 1750 | 13 | a | — |
| | 4.3 | F | 562 | 2400 | 87 | c | $6_3$ |
| | | F | 599 | 2700 | 78 | b | $5_2$ |

Table 42. (Continued)

III. Cruise 8 (3)

1. Pink salmon, カラフトマス (All 2 years old)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 11 | 3.5 | F | 457 | 1150 | 60 | c |
| | | F | 436 | 1050 | 57 | d |
| | | F | 424 | 1150 | 42 | b |
| | | F | 424 | 1100 | 56 | c |
| | | F | 402 | 950 | 39 | c |
| | | M | 459 | 1300 | 18 | b |
| | | M | 438 | 1150 | 7 | b |
| | | M | 436 | 1100 | 20 | c |
| | | M | 434 | 1100 | 27 | b |
| | | M | 434 | 1000 | 5 | d |
| | | M | 422 | 1050 | 21 | c |
| | | M | 410 | 1000 | 26 | c |
| | | M | 402 | 850 | 26 | b |
| | | M | 392 | 950 | 18 | b |
| | 4.0 | F | 490 | 2000 | 125 | b |
| | | F | 484 | 1550 | 110 | c |
| | | F | 470 | 1450 | 66 | c |
| | | F | 470 | 1400 | 110 | b |
| | | F | 462 | 1450 | 69 | c |
| | | F | 460 | 1350 | 70 | d |
| | | F | 454 | 1250 | 20 | b |
| | | F | 450 | 1250 | 63 | c |
| | | F | 440 | 1500 | 68 | b |
| | | F | 440 | 1250 | 49 | d |
| | | F | 440 | 1200 | 40 | c |
| | | M | 512 | 1600 | 48 | b |
| | | M | 498 | 2000 | 60 | b |
| | | M | 462 | 1250 | 13 | c |
| | | M | 460 | 1400 | 90 | b |
| | | M | 458 | 1150 | 15 | b |
| | | M | 449 | 1300 | 45 | c |
| | | M | 444 | 1150 | 8 | d |
| | | M | 436 | 1150 | 48 | c |
| | | M | 432 | 1200 | 23 | c |
| | | M | 430 | 1150 | 29 | d |
| | | M | 430 | 1050 | 20 | c |
| | | M | 424 | 1150 | 26 | d |
| | | M | 420 | 1100 | 40 | a |
| 11 | 4.0 | M | 414 | 1150 | 30 | d |
| | | M | 410 | 1100 | 41 | c |
| | 4.3 | F | 474 | 1550 | 105 | c |
| | | F | 450 | 1200 | 56 | c |
| | | F | 430 | 1300 | 75 | c |
| | | M | 514 | 1950 | 39 | b |
| | | M | 474 | 1600 | 16 | c |
| | | M | 464 | 1500 | 72 | d |
| | | M | 460 | 1450 | 77 | c |
| | | M | 460 | 1400 | 40 | c |
| | | M | 460 | 1400 | 10 | d |
| | | M | 457 | 1500 | 59 | c |
| 12 | 3.5 | F | 492 | — | 70 | — |
| | | F | 488 | 1600 | 112 | b |
| | | F | 486 | 1500 | 110 | a |
| | | F | 482 | 1650 | 73 | c |
| | | F | 478 | 1700 | 115 | a |
| | | F | 470 | 1450 | 100 | b |
| | | F | 470 | 1250 | 64 | b |
| | | F | 460 | 1400 | 98 | b |
| | | M | 520 | 2100 | 130 | a |
| | | M | 450 | 1250 | 51 | b |
| | | M | 434 | 1150 | 20 | b |
| | 4.0 | F | 490 | 1550 | 86 | b |
| | | F | 484 | 1450 | 97 | b |
| | | F | 482 | 1500 | 115 | b |
| | | F | 482 | 1500 | 98 | d |
| | | F | 482 | 1400 | 110 | c |
| | | F | 480 | 1550 | 80 | c |
| | | F | 474 | 1300 | 103 | b |
| | | F | 472 | 1550 | 60 | b |
| | | F | 470 | 1600 | 115 | b |
| | | F | 470 | 1400 | 120 | b |
| | | F | 466 | 1450 | 80 | c |
| | | F | 464 | 1350 | 75 | c |
| | | F | 462 | 1450 | 85 | b |
| | | F | 460 | 1350 | 82 | c |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 12 | 4.0 | F | 459 | 1250 | 80 | b |
| | | F | 450 | 1350 | 83 | c |
| | | F | 442 | 1400 | 92 | b |
| | | F | 432 | 1100 | 73 | c |
| | | F | 430 | 1250 | 82 | c |
| | | F | 416 | 950 | 75 | d |
| | | F | 412 | 1200 | 58 | d |
| | | M | 536 | 2000 | 70 | a |
| | | M | 524 | 1950 | 20 | b |
| | | M | 510 | 2100 | 62 | a |
| | | M | 506 | 1700 | 120 | b |
| | | M | 498 | 1600 | 56 | b |
| | | M | 492 | 1700 | 46 | b |
| | | M | 490 | 1300 | 45 | d |
| | | M | 462 | 1450 | 43 | b |
| | | M | 460 | 1350 | 80 | c |
| | | M | 450 | 1300 | 16 | c |
| | | M | 446 | 1050 | 66 | a |
| | | M | 446 | 1000 | 45 | d |
| | 4.3 | F | 510 | 2000 | 135 | b |
| | | F | 454 | 1350 | 180 | c |
| | | M | 514 | 2050 | 110 | b |
| | | M | 488 | 1600 | 49 | b |
| | | M | 472 | 1700 | 102 | b |
| | | M | 458 | 1400 | 182 | b |
| 13 | 3.5 | F | 482 | 1500 | 98 | b |
| | | F | 478 | 1300 | 96 | b |
| | | F | 468 | 1400 | 88 | a |
| | | F | 468 | 1350 | 125 | b |
| | | F | 454 | 1200 | 91 | b |
| | | M | 540 | 2200 | 63 | a |
| | | M | 512 | 1650 | 35 | b |
| | | M | 480 | 1500 | 62 | b |
| | | M | 472 | 1400 | 125 | b |
| | | M | 470 | 1350 | 34 | a |
| | | M | 452 | 1200 | 55 | b |
| | | M | 434 | 1150 | 52 | b |
| | 4.0 | F | 500 | 1700 | 93 | c |
| | | F | 496 | 1650 | 120 | c |
| | | F | 496 | 1600 | 105 | b |
| 13 | 4.0 | F | 486 | 1450 | 110 | c |
| | | F | 466 | 1450 | 105 | b |
| | | F | 466 | 1400 | 110 | c |
| | | F | 464 | 1400 | 95 | c |
| | | F | 460 | 1300 | 97 | c |
| | | F | 450 | 1400 | 81 | b |
| | | F | 432 | 1100 | 71 | d |
| | | F | 422 | 1550 | 110 | b |
| | | M | 508 | 1500 | 40 | b |
| | | M | 506 | 1700 | 53 | b |
| | | M | 500 | 1900 | 72 | b |
| | | M | 496 | 1500 | 15 | b |
| | | M | 492 | 1700 | 72 | b |
| | | M | 490 | 1650 | 95 | b |
| | | M | 478 | 1550 | 145 | b |
| | | M | 478 | 1250 | 12 | d |
| | | M | 470 | 1500 | 84 | b |
| | | M | 470 | 1400 | 93 | d |
| | | M | 468 | 1350 | 75 | c |
| | | M | 460 | 1500 | 43 | b |
| | | M | 454 | 1450 | 87 | b |
| | | M | 454 | 1250 | 80 | c |
| | | M | 444 | 1150 | 55 | c |
| | 4.3 | F | 482 | 1500 | 107 | d |
| | | F | 472 | 1400 | 75 | c |
| | | F | 470 | 1400 | 115 | d |
| | | F | 460 | 1300 | 105 | c |
| | | F | 462 | 1300 | 100 | d |
| | | F | 458 | 1300 | 103 | b |
| | | F | 450 | 1300 | 100 | c |
| | | F | 440 | 1300 | 95 | c |
| | | M | 502 | 1550 | 53 | b |
| | | M | 498 | 1650 | 62 | b |
| | | M | 468 | 1500 | 75 | c |
| | | M | 440 | 1200 | 62 | d |
| 14 | 3.5 | F | 462 | 1450 | 100 | b |
| | | M | 540 | 2350 | 93 | a |
| | | M | 492 | 1600 | 48 | b |
| | | M | 490 | 1500 | 40 | b |
| | | M | 484 | 1650 | 59 | a |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 14 | 3.5 | M | 464 | 1300 | 62 | b |
| | 4.0 | F | 504 | 1800 | 72 | b |
| | | F | 484 | 1550 | 105 | d |
| | | F | 484 | 1450 | 90 | c |
| | | F | 483 | 1650 | 115 | b |
| | | F | 482 | 1450 | 100 | c |
| | | F | 482 | 1400 | 105 | c |
| | | F | 480 | 1600 | 90 | c |
| | | F | 474 | 1450 | 110 | c |
| | | F | 474 | 1450 | 84 | c |
| | | F | 472 | 1550 | 100 | b |
| | | F | 472 | 1450 | 95 | b |
| | | F | 470 | 1700 | 100 | b |
| | | F | 470 | 1600 | 120 | c |
| | | F | 468 | 1400 | 95 | b |
| | | F | 464 | 1500 | 110 | b |
| | | F | 462 | 1450 | 115 | b |
| | | F | 460 | 1300 | 100 | c |
| | | F | 458 | 1350 | 110 | c |
| | | F | 452 | 1500 | 100 | b |
| | | F | 446 | 1400 | 100 | b |
| | | F | 436 | 1150 | 80 | c |
| | | M | 514 | 1800 | 37 | b |
| | | M | 512 | 2100 | 90 | a |
| | | M | 512 | 1900 | 90 | a |
| | | M | 504 | 1900 | 50 | b |
| | | M | 494 | 1750 | 62 | a |
| | | M | 494 | 1700 | 46 | b |
| | | M | 486 | 1800 | 77 | b |
| | | M | 476 | 1550 | 78 | c |
| | | M | 476 | 1500 | 65 | b |
| | | M | 470 | 1700 | 84 | b |
| | | M | 468 | 1400 | 84 | c |
| | | M | 466 | 1450 | 41 | b |
| | | M | 464 | 1350 | 75 | c |
| | | M | 462 | 1250 | 90 | c |
| | | M | 452 | 1100 | 15 | b |
| | 4.3 | F | 488 | 1700 | 140 | c |
| | | F | 478 | 1700 | 88 | c |
| | | F | 476 | 1700 | 110 | b |
| 14 | 4.3 | M | 508 | 1850 | 55 | b |
| | | M | 494 | 1750 | 82 | c |
| | | M | 492 | 1650 | 80 | b |
| | | M | 470 | 1450 | 43 | d |
| | | M | 460 | 1150 | 45 | c |
| 16 | 3.5 | F | 486 | 1550 | 155 | b |
| | | F | 476 | 1450 | 135 | b |
| | | F | 474 | 1400 | 105 | b |
| | | F | 470 | 1350 | 145 | b |
| | | F | 468 | 1300 | 65 | b |
| | | F | 464 | 1300 | 115 | b |
| | | F | 462 | 1500 | 120 | b |
| | | F | 432 | 1150 | 87 | c |
| | | F | 428 | 850 | 83 | c |
| | | M | 498 | 1700 | 110 | b |
| | | M | 494 | 1500 | 35 | b |
| | | M | 472 | 1400 | 110 | a |
| | 4.0 | F | 474 | 1400 | 85 | c |
| | | F | 462 | 1300 | 102 | c |
| | | F | 462 | 1200 | 60 | b |
| | | F | 460 | 1350 | 70 | b |
| | | F | 452 | 1150 | 130 | d |
| | | F | 440 | 1200 | 132 | d |
| | | M | 500 | 1950 | 62 | b |
| | | M | 500 | 1750 | 56 | c |
| | | M | 494 | 1600 | 24 | b |
| | | M | 474 | 1700 | 115 | a |
| | | M | 472 | 1350 | 130 | b |
| | | M | 470 | 1400 | 59 | c |
| | | M | 460 | 1400 | 85 | b |
| | | M | 458 | 1350 | 115 | b |
| | | M | 452 | 1300 | 12 | d |
| | | M | 434 | 950 | 70 | c |
| | | M | 401 | 700 | 58 | c |
| | 4.5 | F | 494 | 1400 | 150 | c |
| | | M | 498 | 1650 | 88 | b |
| | | M | 490 | 1700 | 75 | b |
| | | M | 486 | 1650 | 105 | b |
| | | M | 480 | 1600 | 105 | b |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 16 | 4.5 | M | 472 | 1600 | 125 | b |
| 17 | 3.5 | F | 494 | 1600 | 120 | a |
| | | F | 490 | 1750 | 160 | a |
| | | F | 490 | 1450 | 98 | b |
| | | F | 482 | 1400 | 105 | b |
| | | F | 473 | 1250 | 125 | c |
| | | F | 472 | 1650 | 115 | a |
| | | F | 472 | 1450 | 110 | b |
| | | F | 464 | 1500 | 102 | b |
| | | M | 480 | 1550 | 140 | b |
| | | M | 463 | 1300 | 140 | b |
| | | M | 462 | 1550 | 100 | a |
| | | M | 462 | 1350 | 65 | b |
| | | M | 422 | 950 | 55 | c |
| | 4.0 | F | 498 | 1800 | 120 | b |
| | | F | 490 | 1650 | 120 | b |
| | | F | 485 | 1550 | 135 | c |
| | | F | 482 | 1800 | 115 | b |
| | | F | 472 | 1550 | 140 | b |
| | | F | 471 | 1550 | 120 | b |
| | | F | 464 | 1300 | 84 | c |
| | | F | 462 | 1500 | 120 | b |
| | | F | 454 | 1300 | 120 | c |
| | | M | 522 | 1900 | 63 | b |
| | | M | 512 | 2000 | 140 | b |
| | | M | 506 | 1700 | 65 | b |
| | | M | 496 | 1600 | 32 | b |
| | | M | 492 | 1800 | 88 | a |
| | | M | 486 | 1450 | 40 | b |
| | | M | 484 | 1550 | 88 | b |
| | | M | 482 | 1400 | 105 | c |
| | | M | 472 | 1400 | 100 | b |
| | | — | 481 | 1600 | 110 | b |
| | 4.3 | F | 506 | 1850 | 130 | c |
| | | F | 506 | 1650 | 210 | c |
| | | F | 492 | 1700 | 145 | c |
| | | F | 490 | 1600 | 100 | d |
| | | F | 476 | 1500 | 120 | c |
| | | M | 528 | 2000 | 84 | b |
| | | M | 516 | 2150 | 100 | b |
| 17 | 4.3 | M | 506 | 1700 | 80 | c |
| | | M | 504 | 2100 | 120 | b |
| | | M | 500 | 1700 | 115 | c |
| 18 | 4.0 | F | 516 | 1550 | 53 | b |
| | | F | 500 | 1700 | 150 | b |
| | | F | 472 | 1350 | 94 | c |
| | | F | 460 | 1300 | 115 | d |
| | | F | 449 | 1150 | 135 | c |
| | | M | 490 | 1650 | 105 | b |
| | | M | 468 | 1450 | 82 | c |
| | | M | 441 | 1200 | 98 | b |

2. Chum salmon, シロサケ

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 11 | 3.5 | F | 570 | 2400 | 125 | a | 4 |
| | | F | 560 | 2400 | 110 | a | 4 |
| | | F | 552 | 2100 | 107 | a | 4 |
| | | F | 524 | 1600 | 75 | a | 4 |
| | | M | 620 | 3200 | 146 | a | 5 |
| | | — | 514 | 1700 | — | a | 3 |
| | 4.0 | F | 614 | 3100 | 120 | b | 5 |
| | | F | 600 | 2950 | 120 | a | 5 |
| | | F | 592 | 2100 | 85 | a | 5 |
| | | F | 588 | 2650 | 162 | a | 5 |
| | | F | 630 | 3400 | 42 | a | 4 |
| | | F | 620 | 3400 | 45 | a | 4 |
| | | F | 620 | 3200 | 60 | a | 4 |
| | | F | 608 | 3200 | 110 | a | 4 |
| | | F | 604 | 2950 | 108 | a | 4 |
| | | F | 604 | 2950 | 60 | a | 4 |
| | | F | 586 | 2850 | 128 | a | 4 |
| | | F | 580 | 2900 | 150 | a | 4 |
| | | F | 570 | 2900 | 195 | a | 4 |
| | | F | 570 | 2450 | 110 | b | 4 |
| | | F | 570 | 2400 | 28 | a | 4 |
| | | F | 556 | 2600 | 160 | b | 4 |
| | | F | 596 | 3100 | 45 | a | 3 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 11 | 4.0 | F | 518 | 1750 | 12 | a | 3 |
| | | F | 588 | 2650 | 20 | a | — |
| | | F | 542 | 2100 | 68 | b | — |
| | | M | 566 | 2400 | 35 | a | 4 |
| | | M | 536 | 2200 | 105 | a | 4 |
| | | M | 594 | 2900 | 115 | a | — |
| | | M | 590 | 2300 | 45 | b | — |
| | | M | 562 | 2400 | 42 | a | — |
| | | M | 540 | 2300 | 18 | a | — |
| | 4.3 | F | 524 | 2150 | 130 | — | 5 |
| | | F | 630 | 3100 | 56 | — | 4 |
| | | F | 601 | 3200 | 51 | — | 4 |
| | | F | 510 | 1950 | 95 | — | 4 |
| | | F | 496 | 1600 | 8 | — | 3 |
| | | F | 598 | 2800 | 220 | — | — |
| | | F | 554 | 2200 | 135 | — | — |
| | | M | 630 | 3500 | 150 | — | 6 |
| | | M | 602 | 3250 | 125 | — | 5 |
| | | M | 602 | 2800 | 88 | — | 5 |
| | | M | 590 | 2800 | 150 | — | 5 |
| | | M | 640 | 3400 | 10 | — | 4 |
| | | M | 632 | 3700 | 41 | — | 4 |
| | | M | 622 | 3750 | 60 | — | 4 |
| | | M | 566 | 2450 | 48 | — | 4 |
| | | M | 542 | 2050 | 4 | — | 4 |
| | | M | 540 | 2800 | 10 | — | 4 |
| 12 | 3.5 | F | 592 | 2500 | 140 | a | 5 |
| | | F | 500 | 1500 | 7 | b | 3 |
| | | — | 550 | 1850 | — | a | 4 |
| | 4.0 | F | 610 | 2700 | 148 | a | 5 |
| | | F | 600 | 3300 | 250 | a | 5 |
| | | F | 544 | 2000 | 110 | b | 5 |
| | | F | 582 | 2550 | 95 | a | 4 |
| | | F | 570 | 2700 | 185 | a | 4 |
| | | F | 570 | 2050 | 91 | b | 4 |
| | | F | 552 | 2550 | 173 | a | 4 |
| | | F | 526 | 2050 | 182 | b | 4 |
| | | F | 516 | 1800 | 62 | c | 4 |
| | | F | 518 | 1800 | 15 | c | 3 |
| 12 | 4.0 | F | 472 | 1450 | 65 | c | 3 |
| | | F | 540 | 1950 | 49 | b | — |
| | | M | 650 | 3700 | 54 | a | 5 |
| | | M | 632 | 3500 | 200 | a | 5 |
| | | M | 602 | 2800 | 115 | a | 5 |
| | | M | 580 | 2500 | 31 | a | 5 |
| | | M | 562 | 2700 | 56 | a | 5 |
| | | M | 624 | 3500 | 145 | a | 4 |
| | | M | 612 | 3350 | 110 | a | 4 |
| | | M | 600 | 2750 | 25 | a | 4 |
| | | M | 584 | 2900 | 31 | a | 4 |
| | | M | 572 | 2850 | 34 | a | 4 |
| | | M | 560 | 2700 | 135 | a | 4 |
| | | M | 556 | 2250 | 79 | a | 4 |
| | | M | 550 | 2250 | 87 | a | 4 |
| | | M | 536 | 1950 | 99 | a | 4 |
| | | M | 548 | 2050 | 84 | b | — |
| | 4.3 | F | 518 | 2500 | 145 | b | 5 |
| | | F | 584 | 2600 | 155 | b | 4 |
| | | F | 570 | 2500 | 112 | a | 4 |
| | | F | 562 | 2550 | 120 | b | 4 |
| | | F | 560 | 2500 | 148 | a | 4 |
| | | F | 546 | 2300 | 70 | b | 4 |
| | | F | 535 | 1950 | 160 | b | 4 |
| | | F | 530 | 1950 | 145 | b | 4 |
| | | F | 520 | 1850 | 75 | c | 4 |
| | | F | 520 | 1800 | 98 | c | 4 |
| | | F | 500 | 1750 | 92 | c | 4 |
| | | M | 604 | 3000 | 195 | a | 5 |
| | | M | 590 | 2900 | 69 | a | 4 |
| | | M | 589 | 2550 | 12 | b | 4 |
| | | M | 562 | 2750 | 95 | b | 4 |
| | | M | 562 | 2100 | 115 | b | 4 |
| | | M | 546 | 2450 | 118 | a | 4 |
| | | M | 512 | 1950 | 45 | b | 4 |
| | | M | 488 | 1500 | 62 | c | 3 |
| | | — | 586 | 2900 | 115 | a | 4 |
| 13 | 3.5 | F | 594 | 3200 | 150 | a | 5 |
| | | F | 580 | 2450 | 195 | a | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 13 | 3.5 | F | 572 | 2700 | 100 | a | 4 |
| | | F | 454 | 1200 | 7 | c | 3 |
| | | — | 496 | 1450 | — | b | 3 |
| | 4.0 | F | 590 | 2500 | 110 | a | 5 |
| | | F | 590 | 2100 | 76 | b | 4 |
| | | F | 578 | 2400 | 95 | a | 4 |
| | | F | 574 | 2700 | 120 | a | 4 |
| | | F | 570 | 2300 | 38 | b | 4 |
| | | F | 562 | 2200 | 190 | a | 4 |
| | | F | 560 | 2400 | 97 | b | 4 |
| | | F | 554 | 2200 | 51 | b | 4 |
| | | F | 548 | 2100 | 48 | a | 4 |
| | | F | 540 | 2100 | 57 | b | 4 |
| | | F | 534 | 1950 | 80 | b | 4 |
| | | F | 534 | 1800 | 80 | b | 4 |
| | | F | 532 | 2050 | 100 | a | 4 |
| | | F | 528 | 1850 | 16 | b | 4 |
| | | F | 508 | 1850 | 102 | a | 4 |
| | | F | 498 | 1500 | 95 | b | 4 |
| | | F | 540 | 1950 | 13 | b | 3 |
| | | F | 528 | 1800 | 40 | a | 3 |
| | | F | 506 | 1800 | 120 | b | 3 |
| | | F | 504 | 1400 | 51 | c | 3 |
| | | F | 502 | 1500 | 70 | b | 3 |
| | | F | 502 | 1450 | 10 | c | 3 |
| | | F | 484 | 1450 | 5 | b | 3 |
| | | F | 478 | 1400 | 10 | b | 3 |
| | | F | 450 | 1100 | 6 | c | 3 |
| | | M | 646 | 3500 | 103 | a | 5 |
| | | M | 592 | 2650 | 53 | a | 4 |
| | | M | 584 | 2600 | 41 | a | 4 |
| | | M | 582 | 2450 | 105 | a | 4 |
| | | M | 560 | 2200 | 84 | a | 4 |
| | | M | 504 | 1650 | 86 | b | 4 |
| | | — | 558 | 2450 | 120 | b | 4 |
| | | — | 494 | 1400 | — | c | 3 |
| | | — | 486 | 1400 | — | c | 3 |
| | 4.3 | F | 602 | 2650 | 200 | a | 5 |
| | | F | 556 | 2400 | 125 | b | 5 |
| 13 | 4.3 | F | 562 | 2100 | 168 | b | 4 |
| | | F | 540 | 2050 | 57 | b | 4 |
| | | F | 530 | 2000 | 150 | b | 4 |
| | | F | 526 | 1900 | 88 | b | 4 |
| | | F | 516 | 1800 | 230 | b | 3 |
| | | M | 594 | 2700 | 107 | a | 5 |
| | | M | 620 | 3000 | 157 | a | 4 |
| | | M | 556 | 2200 | 48 | b | 4 |
| | | M | 524 | 1950 | 48 | c | 4 |
| | | M | 576 | 2650 | 80 | a | 3 |
| | | — | 600 | 2500 | — | a | 4 |
| 14 | 3.5 | F | 572 | 2450 | 125 | a | 5 |
| | | F | 542 | 2100 | 66 | a | 4 |
| | | F | 538 | 1850 | 48 | a | 4 |
| | | F | 534 | 2000 | 75 | a | 4 |
| | | F | 512 | 1800 | 94 | a | 4 |
| | | F | 514 | 1800 | 44 | a | 3 |
| | | F | 490 | 1400 | 10 | c | 3 |
| | | F | 462 | 1200 | 10 | b | 3 |
| | | M | 558 | 2100 | 13 | a | 4 |
| | | M | 526 | 1900 | 1 | a | — |
| | 4.0 | F | 592 | 2700 | 135 | a | 5 |
| | | F | 572 | 2400 | 75 | b | 5 |
| | | F | 582 | 2950 | 115 | a | 4 |
| | | F | 562 | 2350 | 34 | a | 4 |
| | | F | 552 | 2400 | 128 | b | 4 |
| | | F | 550 | 2050 | 60 | b | 4 |
| | | F | 540 | 2000 | 38 | b | 4 |
| | | F | 530 | 1950 | 61 | b | 4 |
| | | F | 524 | 2100 | 130 | a | 4 |
| | | F | 498 | 1700 | 65 | b | 4 |
| | | F | 480 | 1500 | 49 | c | 3 |
| | | F | 566 | 2450 | 95 | b | 3 |
| | | F | 562 | 2500 | 107 | a | 3 |
| | | F | 520 | 1950 | 69 | b | 3 |
| | | F | 508 | 1550 | 77 | c | 3 |
| | | M | 548 | 2050 | 1 | b | 5 |
| | | M | 560 | 2450 | 64 | a | 4 |
| | | M | 520 | 1750 | 16 | b | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 14 | 4.0 | M | 550 | 2000 | 21 | b | 3 |
| | | — | 548 | 2050 | — | b | 4 |
| | | — | 468 | 1250 | — | c | 3 |
| | 4.3 | F | 580 | 2650 | 170 | b | 5 |
| | | F | 584 | 2850 | 237 | a | 4 |
| | | F | 578 | 2600 | 83 | b | 4 |
| | | F | 554 | 2500 | 135 | b | 4 |
| | | F | 542 | 2000 | 100 | c | 4 |
| | | F | 538 | 2200 | 67 | b | 4 |
| | | F | 490 | 1750 | 110 | d | 4 |
| | | F | 484 | 1650 | 65 | b | 4 |
| | | M | 602 | 3000 | 120 | a | 5 |
| | | M | 596 | 2700 | 79 | a | 5 |
| | | M | 564 | 2400 | 17 | a | 4 |
| | | M | 546 | 2100 | 25 | b | 4 |
| | | M | 522 | 1900 | 37 | c | — |
| | | — | 522 | 1750 | — | c | 3 |
| | | — | 502 | 1500 | — | — | 3 |
| 15 | 3.5 | F | 622 | 3500 | 237 | a | 5 |
| | | F | 622 | 3000 | 215 | a | 5 |
| | | F | 604 | 2900 | 230 | a | 5 |
| | | M | 646 | 3900 | 110 | a | 5 |
| | | M | 624 | 3500 | 180 | a | 5 |
| | | — | 480 | 1200 | — | c | 3 |
| | 4.0 | F | 590 | 2900 | 130 | a | 4 |
| | | F | 570 | 2550 | 142 | a | 4 |
| | | F | 564 | 2100 | 145 | b | — |
| 16 | 3.5 | F | 552 | 2200 | 255 | a | 5 |
| | | F | 548 | 2350 | 180 | a | 5 |
| | | F | 502 | 1800 | 95 | b | 4 |
| | | F | 500 | 1800 | 65 | a | 4 |
| | | M | 594 | 3050 | 125 | a | 4 |
| | | M | 564 | 2600 | 160 | a | 4 |
| | 4.0 | F | 626 | 3600 | 330 | a | 5 |
| | | F | 604 | 2800 | 230 | a | 5 |
| | | F | 592 | 2750 | 170 | a | 5 |
| | | F | 590 | 2800 | 210 | a | 5 |
| | | F | 586 | 2700 | 185 | a | 5 |
| 16 | 4.0 | F | 580 | 2650 | 175 | b | 5 |
| | | F | 576 | 2950 | 57 | a | 5 |
| | | F | 566 | 2600 | 200 | a | 5 |
| | | F | 566 | 2350 | 147 | b | 5 |
| | | F | 559 | 2400 | 85 | b | 5 |
| | | F | 593 | — | 132 | b | 4 |
| | | F | 588 | 3150 | 195 | a | 4 |
| | | F | 588 | 2600 | 225 | a | 4 |
| | | F | 560 | 2400 | 195 | a | 4 |
| | | F | 554 | 2250 | 170 | b | 4 |
| | | F | 551 | 2000 | 92 | b | 4 |
| | | F | 550 | 2250 | 150 | b | 4 |
| | | F | 548 | 2600 | 140 | a | 4 |
| | | F | 536 | 1950 | 172 | a | 4 |
| | | F | 498 | 1250 | 68 | b | 3 |
| | | M | 592 | 2800 | 55 | a | 5 |
| | | M | 568 | 2500 | 140 | a | 5 |
| | | M | 599 | 3050 | 110 | a | 4 |
| | | M | 596 | 3150 | 150 | a | 4 |
| | | M | 576 | 2550 | 130 | a | 4 |
| | | M | 561 | 2350 | 150 | a | 4 |
| | | M | 558 | 2450 | 125 | a | 4 |
| | | M | 550 | 2700 | 74 | a | 4 |
| | | M | 522 | 2050 | 63 | a | 3 |
| | 4.3 | F | 619 | 3350 | 185 | a | 5 |
| | | F | 618 | 3300 | 295 | a | 5 |
| | | F | 594 | 2950 | 165 | b | 5 |
| | | F | 590 | 2650 | 345 | b | 5 |
| | | F | 582 | 2400 | 115 | b | 5 |
| | | F | 568 | 2500 | 265 | b | 5 |
| | | F | 564 | 2700 | 200 | a | 5 |
| | | F | 564 | 2350 | 220 | b | 5 |
| | | F | 592 | 2100 | 120 | b | 4 |
| | | F | 582 | 2500 | 95 | a | 4 |
| | | F | 454 | 1600 | 75 | c | 3 |
| | | M | 599 | 2900 | 175 | a | 5 |
| | | M | 520 | 2000 | 130 | b | 3 |
| 17 | 3.5 | F | 549 | 2400 | 187 | a | 4 |
| | | F | 540 | 2250 | 155 | a | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 17 | 4.0 | F | 622 | 3300 | 130 | a | 5 |
| | | F | 604 | 3200 | 265 | a | 5 |
| | | F | 592 | 2850 | 260 | b | 5 |
| | | F | 592 | 2650 | 210 | a | 5 |
| | | F | 592 | 2550 | 245 | a | 5 |
| | | F | 591 | 3000 | 160 | a | 5 |
| | | F | 590 | 2700 | 265 | a | 5 |
| | | F | 589 | 2800 | 230 | a | 5 |
| | | F | 580 | 2800 | 203 | a | 5 |
| | | F | 574 | 2500 | 265 | a | 5 |
| | | F | 562 | 2450 | 140 | b | 5 |
| | | F | 545 | 2300 | 200 | a | 5 |
| | | F | 628 | 3200 | 230 | a | 4 |
| | | F | 600 | 2950 | 275 | a | 4 |
| | | F | 585 | 2650 | 210 | a | 4 |
| | | F | 582 | 2500 | 250 | a | 4 |
| | | F | 566 | 2400 | 155 | a | 4 |
| | | F | 556 | 2600 | 200 | a | 4 |
| | | F | 555 | 2550 | 165 | a | 4 |
| | | F | 552 | 2300 | 170 | b | 4 |
| | | F | 551 | 2500 | 40 | a | 4 |
| | | F | 540 | 2250 | 120 | a | 4 |
| | | F | 535 | 2100 | 170 | a | 4 |
| | | F | 488 | 1750 | 90 | c | 4 |
| | | M | 630 | 3500 | 170 | a | 5 |
| | | M | 604 | 3000 | 195 | a | 5 |
| | | M | 586 | 2800 | 210 | a | 5 |
| | | M | 638 | 3700 | 150 | a | 4 |
| | | M | 607 | 3600 | 330 | a | 4 |
| | | M | 584 | 2400 | 87 | a | 4 |
| | | M | 566 | 2600 | 120 | a | 4 |
| | | M | 550 | 2200 | 1 | b | 4 |
| | | M | 534 | 2300 | 36 | a | 4 |
| | 4.3 | F | 601 | 2750 | 215 | a | 5 |
| | | F | 595 | 3300 | 270 | a | 5 |
| | | F | 596 | 2700 | 226 | b | 4 |
| | | F | 582 | 2800 | 145 | b | 4 |
| | | F | 566 | 2550 | 90 | a | 4 |
| | | F | 562 | 2200 | 125 | c | 4 |
| | | F | 560 | 2600 | 235 | a | 4 |
| 17 | 4.3 | F | 550 | 2250 | 135 | b | 4 |
| | | F | 536 | 2300 | 55 | b | 4 |
| | | F | 518 | 1950 | 130 | c | 4 |
| | | F | 559 | 2550 | 170 | b | — |
| | | M | 634 | 3900 | 285 | a | 5 |
| | | M | 518 | 1700 | 37 | c | 5 |
| | | M | 586 | 2700 | 58 | a | 4 |
| | | M | 578 | 2700 | 100 | a | 4 |
| | | M | 554 | 2100 | 50 | b | 4 |
| 18 | 4.0 | F | 640 | 3400 | 425 | a | 5 |
| | | F | 611 | 3150 | 135 | a | 5 |
| | | F | 611 | 2900 | 245 | a | 4 |
| | | F | 602 | 2700 | 195 | b | 4 |
| | | F | 588 | 2450 | 290 | b | 4 |
| | | F | 580 | 2600 | 235 | a | 4 |
| | | F | 578 | 2400 | 245 | b | 4 |
| | | F | 576 | 2600 | 170 | b | 4 |
| | | F | 559 | 2400 | 320 | b | 4 |
| | | F | 556 | 2100 | 165 | b | 4 |
| | | F | 544 | 1800 | 150 | c | 4 |
| | | M | 680 | 4300 | 325 | a | 5 |
| | | M | 632 | 3200 | 146 | a | 4 |
| | | M | 620 | 3200 | 130 | a | 4 |
| | | M | 530 | 2100 | 42 | b | 3 |
| | | M | 530 | 2000 | 82 | b | — |

3. Sockeye salmon, ベニサケ

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 12 | 4.0 | M | 614 | 3600 | 36 | a | $5_2$ |
| | 4.3 | F | 550 | 2050 | 46 | c | $6_4$ |
| | | M | 640 | 4200 | 42 | a | $7_3$ |
| 13 | 3.5 | F | 600 | 3050 | 170 | a | $5_2$ |
| | | F | 560 | 2700 | 165 | a | $5_2$ |
| | | F | 518 | 1750 | 190 | a | $5_3$ |
| | 4.0 | F | 606 | 2950 | 142 | a | $6_3$ |
| | | F | 606 | 2800 | 110 | a | $6_3$ |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 13 | 4.0 | F | 582 | 2800 | 132 | a | $6_3$ |
| | | F | 562 | 2200 | 87 | b | $6_3$ |
| | | F | 536 | 2250 | 82 | b | $5_3$ |
| | | F | 530 | 1950 | 97 | c | $5_3$ |
| | | F | 524 | 1950 | 75 | b | $5_3$ |
| | | F | 568 | 2550 | 60 | b | $4_2$ |
| | | F | 538 | 2000 | 130 | b | $4_2$ |
| | | F | 580 | 2700 | 205 | a | — |
| | | M | 570 | 2500 | 57 | a | $6_3$ |
| | | M | 582 | 2650 | 41 | a | $5_2$ |
| | | M | 554 | 2400 | 25 | a | $5_3$ |
| | | M | 550 | 2150 | 84 | b | $5_3$ |
| | | M | 542 | 2200 | 67 | b | $5_3$ |
| | | M | 534 | 1950 | 34 | b | $5_3$ |
| | | M | 512 | 2400 | 37 | a | $5_3$ |
| | | M | 576 | 2650 | 61 | a | $4_2$ |
| | | M | 548 | 2450 | 30 | b | $4_2$ |
| | | M | 534 | 2000 | 85 | b | $4_2$ |
| | | — | 632 | 3300 | — | a | $6_3$ |
| | 4.3 | F | 616 | 3000 | 169 | a | $6_3$ |
| | | F | 530 | 2000 | 175 | c | $6_4$ |
| | | M | 630 | 3300 | 102 | a | $6_3$ |
| | | M | 620 | 3350 | 60 | a | $6_3$ |
| | | M | 580 | 2550 | 65 | a | $6_3$ |
| | | M | 562 | 2600 | 48 | b | $5_3$ |
| 14 | 3.5 | F | 570 | 2450 | 150 | a | $7_4$ |
| | | F | 524 | 1850 | 165 | a | $5_3$ |
| | | M | 600 | 3600 | 80 | a | $6_3$ |
| | | M | 656 | 3900 | 145 | a | $5_2$ |
| | | M | 570 | 2600 | 50 | a | $5_3$ |
| | | M | 570 | 2100 | 58 | a | $5_3$ |
| | 4.0 | F | 576 | 2700 | 115 | a | $7_4$ |
| | | F | 586 | 2500 | 105 | b | $6_3$ |
| | | F | 559 | 2750 | 130 | a | $6_3$ |
| | | F | 556 | 2700 | 195 | b | $6_3$ |
| | | F | 580 | 3050 | 190 | a | $5_2$ |
| | | F | 580 | 2750 | 145 | a | $5_2$ |
| | | F | 534 | 2200 | 125 | b | $5_2$ |
| | | F | 560 | 2300 | 103 | b | $5_3$ |

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 14 | 4.0 | F | 534 | 1950 | 55 | b | $5_3$ |
| | | F | 520 | 2050 | 95 | b | $5_3$ |
| | | F | 516 | 1800 | 96 | b | $5_3$ |
| | | F | 506 | 1900 | 125 | b | $5_3$ |
| | | F | 506 | 1700 | 70 | c | $5_3$ |
| | | F | 510 | 1900 | 67 | b | $4_2$ |
| | | F | 510 | 1850 | 106 | b | $4_2$ |
| | | F | 576 | 2950 | 130 | a | — |
| | | F | 588 | 3100 | 115 | a | — |
| | | M | 656 | 3650 | 39 | a | $7_4$ |
| | | M | 628 | 3750 | 76 | a | $6_3$ |
| | | M | 622 | 3300 | 68 | a | $6_3$ |
| | | M | 630 | 3400 | 45 | a | $5_2$ |
| | | M | 612 | 3750 | 75 | a | $5_2$ |
| | | M | 602 | 3500 | 75 | a | $5_2$ |
| | | M | 554 | 2050 | 39 | b | $5_3$ |
| | | M | 552 | 2400 | 50 | a | $5_3$ |
| | | M | 560 | 2500 | 60 | b | $4_2$ |
| | | M | 554 | 2500 | 27 | a | $4_2$ |
| | | M | 548 | 2450 | 64 | a | $4_2$ |
| | | M | 546 | 2200 | 30 | a | $4_2$ |
| | | M | 604 | 3300 | 41 | a | — |
| | 4.3 | F | 574 | 2700 | 155 | a | $6_3$ |
| | | F | 494 | 1800 | 77 | b | $4_2$ |
| | | M | 632 | 3300 | 57 | a | $6_3$ |
| | | M | 628 | 3550 | 65 | a | $6_3$ |
| | | M | 590 | 3150 | 130 | a | $5_2$ |
| | | M | 568 | 2600 | 75 | a | $5_3$ |
| | | M | 504 | 1900 | 97 | a | $5_3$ |
| | | M | 504 | 1800 | 115 | c | $5_3$ |
| 15 | 4.0 | F | 578 | 2450 | 127 | b | $6_3$ |
| | | F | 500 | 2050 | 75 | b | $5_3$ |
| | | F | 580 | 2750 | 150 | b | — |
| | | M | 664 | 4000 | 92 | a | $5_2$ |
| | | M | 548 | 2100 | 80 | a | $5_3$ |
| | | M | 538 | 1750 | 70 | b | $5_3$ |
| | | M | 520 | 1750 | 92 | b | $5_3$ |
| | | M | 546 | 2300 | 96 | a | $4_2$ |
| | | M | 492 | 1700 | 51 | a | $4_2$ |
| | | — | 576 | 2800 | 175 | a | $5_2$ |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 15 | 4.3 | F | 600 | 2900 | 130 | b | $7_4$ |
| | | F | 564 | 2400 | 115 | b | $5_3$ |
| | | F | 558 | 2500 | 185 | b | $4_1$ |
| | | M | 604 | 2650 | 27 | a | $6_3$ |
| | | M | 570 | 2600 | 73 | a | $5_3$ |
| | | M | 558 | 2400 | 79 | b | $5_3$ |
| | | M | 546 | 2100 | 64 | b | $5_3$ |
| | | M | 518 | 1950 | 72 | b | — |
| | ? | F | 614 | 3500 | 330 | — | $5_2$ |
| | | M | 612 | 3600 | 85 | — | $6_3$ |
| | | M | 656 | 4250 | 80 | — | $5_2$ |
| | | M | 622 | 4000 | 90 | — | $5_2$ |
| | | M | 622 | 3700 | 73 | — | $5_2$ |
| | | M | 613 | 3300 | 97 | — | $5_2$ |
| | | M | 585 | 2950 | 80 | — | $5_2$ |
| | | M | 564 | 2300 | 56 | — | $5_3$ |
| | | M | 533 | 1950 | 71 | — | $5_3$ |
| | | M | 563 | 2450 | 55 | — | $4_2$ |
| 16 | 3.5 | F | 574 | 2750 | 220 | a | $6_3$ |
| | | F | 580 | 2850 | 195 | a | $5_2$ |
| | | F | 538 | 2150 | 84 | a | $5_3$ |
| | | F | 532 | 2050 | 140 | a | $5_3$ |
| | | F | 521 | 2050 | 86 | b | $5_3$ |
| | | F | 518 | 1750 | 180 | a | $5_3$ |
| | | F | 506 | 1550 | 150 | b | $5_3$ |
| | | F | 481 | 1300 | 82 | c | $5_3$ |
| | | F | 585 | 2400 | 68 | a | — |
| | | M | 588 | 2900 | 46 | a | $5_2$ |
| | | M | 606 | 3200 | 36 | a | — |
| | 4.0 | F | 581 | 2850 | 138 | a | $6_3$ |
| | | F | 580 | 2400 | 128 | a | $6_3$ |
| | | F | 576 | 2400 | 120 | b | $6_3$ |
| | | F | 558 | 2450 | 235 | b | $6_3$ |
| | | F | 512 | 1700 | 150 | a | $6_3$ |
| | | F | 542 | 2100 | 140 | b | $5_3$ |
| | | F | 528 | 2450 | 85 | b | $5_3$ |
| | | F | 522 | 1800 | 47 | b | $5_3$ |
| | | F | 520 | 2350 | 87 | b | $5_3$ |
| | | F | 508 | 1450 | 82 | c | $5_3$ |
| 16 | 4.0 | F | 504 | 1650 | 132 | c | $5_3$ |
| | | M | 480 | 1650 | 68 | a | $6_4$ |
| | | M | 562 | 2550 | 70 | a | $5_3$ |
| | | M | 536 | 2100 | 130 | b | $5_3$ |
| | | M | 512 | 1600 | 60 | b | $5_3$ |
| | | M | 486 | 1550 | 58 | b | $5_2$ |
| | 4.3 | M | 626 | 3400 | 50 | a | $7_4$ |
| | | M | 620 | 3150 | 77 | a | $6_3$ |
| | | M | 648 | 4300 | 115 | a | $5_2$ |
| | | M | 528 | 2100 | 96 | b | $5_3$ |
| | | M | 508 | 1800 | 115 | b | $5_3$ |
| | | M | 464 | 1250 | 68 | b | $5_3$ |
| | | M | 554 | 2500 | 70 | b | $4_2$ |
| 17 | 3.5 | F | 536 | 2050 | 100 | a | $5_3$ |
| | | M | 500 | 1650 | 70 | a | $5_3$ |
| | | M | 526 | 1800 | 95 | a | — |
| | 4.0 | F | 572 | 2300 | 120 | a | $6_3$ |
| | | F | 603 | 3300 | 190 | a | $5_2$ |
| | | F | 584 | 3050 | 160 | a | $5_2$ |
| | | F | 572 | 2650 | 98 | a | $5_2$ |
| | | F | 542 | 2350 | 95 | b | $5_3$ |
| | | F | 542 | 2300 | 115 | b | $5_3$ |
| | | F | 538 | 2100 | 88 | b | $5_3$ |
| | | F | 524 | 1900 | 140 | b | $5_3$ |
| | | F | 521 | 2000 | 140 | b | $5_3$ |
| | | F | 521 | 1650 | 140 | c | $5_3$ |
| | | F | 518 | 1800 | 70 | b | $5_3$ |
| | | F | 510 | 1700 | 120 | b | $5_3$ |
| | | F | 564 | 2850 | 220 | a | $4_1$ |
| | | F | 562 | 2700 | 145 | a | $4_1$ |
| | | M | 574 | 2500 | 105 | a | $7_4$ |
| | | M | 660 | 3150 | 120 | a | $6_3$ |
| | | M | 600 | 2750 | 90 | a | $6_3$ |
| | | M | 579 | 2400 | 50 | a | $6_3$ |
| | | M | 660 | 3900 | 90 | a | $5_2$ |
| | | M | 580 | 2850 | 60 | a | $5_3$ |
| | | M | 556 | 2150 | 88 | a | $5_3$ |
| | | M | 542 | 2000 | 55 | a | $5_3$ |
| | | M | 508 | 1750 | 77 | a | $5_3$ |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 17 | 4.0 | M | 504 | 2000 | 76 | a | $5_3$ |
| | | M | 655 | 3150 | 95 | a | — |
| | | M | 557 | 2550 | 70 | a | — |
| | | — | 566 | 2450 | 185 | b | — |
| | 4.3 | F | 616 | 3100 | 165 | a | $6_3$ |
| | | F | 600 | 2850 | 140 | b | $6_2$ |
| | | F | 598 | 2700 | 158 | a | $6_3$ |
| | | F | 538 | 2150 | 160 | b | $6_1$ |
| | | F | 520 | 2150 | 140 | b | $5_3$ |
| | | F | 554 | 2300 | 235 | b | — |
| | | M | 636 | 3500 | 23 | a | $6_3$ |
| | | M | 599 | 3350 | 97 | a | $5_2$ |
| | | M | 568 | 2800 | 60 | a | $5_3$ |
| | | M | 560 | 2400 | 100 | a | $5_3$ |
| | | M | 556 | 1950 | 160 | b | $5_3$ |
| | | M | 520 | 1950 | 47 | c | $5_3$ |
| | | M | 512 | 1800 | 95 | b | $5_3$ |
| | | M | 610 | 3400 | 110 | a | $4_1$ |
| | | M | 544 | 2300 | 40 | a | $4_1$ |
| | | M | 554 | 2400 | 65 | b | — |
| 18 | 4.0 | F | 618 | 3000 | 130 | b | $7_4$ |
| | | F | 614 | 2950 | 95 | b | $7_4$ |
| | | F | 600 | 2750 | 185 | b | $6_3$ |
| | | F | 574 | 2800 | 165 | b | $5_2$ |
| | | F | 558 | 2300 | 175 | b | $5_2$ |
| | | F | 550 | 2300 | 105 | b | $5_3$ |
| | | F | 538 | 2000 | 87 | b | $5_3$ |
| | | F | 534 | 2250 | 82 | a | $5_3$ |
| | | F | 533 | 1800 | 135 | b | $5_3$ |
| | | F | 516 | 1850 | 110 | a | $5_3$ |
| | | F | 536 | 2000 | 140 | c | $4_2$ |
| | | F | 630 | 3500 | 145 | a | — |
| | | F | 616 | 3300 | 120 | a | — |
| | | F | 579 | 2400 | 260 | b | — |
| | | F | 534 | 1850 | 220 | c | — |
| | | F | 528 | 2100 | 67 | b | — |
| | | F | 519 | 1800 | 90 | c | — |
| | | F | 518 | 1700 | 140 | c | — |
| | | F | 515 | 1850 | 220 | b | — |
| 18 | 4.0 | F | 514 | 1750 | 100 | c | — |
| | | M | 520 | 1850 | 57 | b | $6_4$ |
| | | M | 682 | 4500 | 100 | a | $5_2$ |
| | | M | 626 | 3500 | 58 | a | $5_2$ |
| | | M | 572 | 2750 | 72 | a | $5_3$ |
| | | M | 530 | 1900 | 37 | b | $5_3$ |
| | | M | 530 | 1450 | 65 | c | $5_3$ |
| | | M | 524 | 1800 | 75 | b | $5_3$ |
| | | M | 516 | 1800 | 105 | b | $5_3$ |
| | | M | 508 | 1650 | 120 | b | $5_3$ |
| | | M | 500 | 1500 | 75 | c | $5_3$ |
| | | M | 499 | 1250 | 32 | c | $5_3$ |
| | | M | 574 | 2650 | 77 | a | $4_2$ |
| | | M | 664 | 3800 | 62 | a | — |
| | | M | 521 | 1650 | 62 | c | — |
| | | M | 518 | 1800 | 57 | a | — |
| | | M | 476 | 1500 | 72 | a | — |

Ⅳ. Cruise 8 (4)

1. Pink salmon, カラフトマス (All 2 years old)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 20 | 4.0 | F | 542 | 2250 | 107 | a |
| | | F | 540 | 2150 | 170 | a |
| | | F | 530 | 2100 | 150 | b |
| | | F | 518 | 1600 | 110 | c |
| | | F | 514 | 2000 | 140 | a |
| | | F | 502 | 1600 | 140 | b |
| | | F | 492 | 1400 | 71 | c |
| | | F | 490 | 1500 | 92 | c |
| | | F | 478 | 1350 | 110 | b |
| | | F | 472 | 1350 | 120 | c |
| | | M | 580 | 2550 | 208 | a |
| | | M | 580 | 1850 | 45 | a |
| | | M | 542 | 2450 | 80 | a |
| | | M | 510 | 1800 | 125 | b |
| | | M | 508 | 1400 | 55 | c |
| | | M | 488 | 1350 | 80 | c |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 21 | 3.5 | F | 476 | 1400 | 104 | b |
| | | M | 512 | 1500 | 120 | c |
| | | M | 510 | 1940 | 140 | b |
| | | M | 473 | 1050 | 35 | b |
| | | M | 451 | 1150 | 85 | d |
| | 4.0 | F | 524 | 1600 | 71 | c |
| | | F | 518 | 1600 | 69 | a |
| | | F | 510 | 1390 | 140 | c |
| | | M | 559 | 2100 | 160 | b |
| | | M | 541 | 2000 | 92 | a |
| | | M | 538 | 1850 | 40 | b |
| | 4.3 | M | 478 | 1320 | 120 | a |
| 23 | 3.5 | F | 528 | 2200 | 185 | b |
| | | F | 525 | 2000 | 180 | b |
| | | F | 510 | 1900 | 130 | a |
| | | F | 510 | 1750 | 125 | b |
| | | F | 500 | 1650 | 145 | b |
| | | F | 492 | 1650 | 130 | b |
| | | F | 488 | 1400 | 123 | b |
| | 4.0 | F | 538 | 2250 | 178 | b |
| | | F | 533 | 2050 | 145 | b |
| | | F | 528 | 2050 | 110 | b |
| | | F | 528 | 2000 | 167 | b |
| | | F | 523 | 2000 | 200 | b |
| | | F | 520 | 2000 | 180 | a |
| | | F | 515 | 1900 | 170 | b |
| | | F | 513 | 1850 | 150 | b |
| | | F | 512 | 1850 | 155 | b |
| | | F | 512 | 1850 | 115 | b |
| | | F | 508 | 1750 | 120 | b |
| | | F | 500 | 1950 | 147 | b |
| | | F | 498 | 1450 | 140 | b |
| | | F | 495 | 1600 | 120 | b |
| | | M | 545 | 2150 | 185 | a |
| | | M | 544 | 2150 | 194 | a |
| | | M | 540 | 2550 | 115 | a |
| | | M | 540 | 2400 | 150 | a |
| | | M | 535 | 2400 | 220 | a |
| | | M | 535 | 2200 | 169 | a |
| 23 | 4.0 | M | 530 | 2400 | 166 | b |
| | | M | 523 | 2150 | 145 | b |
| | | M | 517 | 2450 | 175 | a |
| | | M | 512 | 1950 | 160 | b |
| | | M | 505 | 1750 | 158 | a |
| | | M | 488 | 1300 | 84 | b |
| | 4.3 | F | 537 | 2100 | 160 | b |
| | | F | 532 | 1950 | 170 | c |
| | | F | 530 | 2250 | 215 | b |
| | | F | 527 | 2150 | 180 | b |
| | | F | 520 | 2050 | 205 | b |
| | | F | 520 | 2000 | 172 | b |
| | | F | 505 | 1750 | 160 | b |
| | | F | 501 | 1800 | 155 | b |
| | | F | 499 | 1500 | 125 | b |
| | | M | 588 | 2750 | 240 | a |
| | | M | 567 | 2400 | 160 | a |
| | | M | 545 | 2450 | 190 | a |
| | | M | 536 | 2050 | 150 | b |
| | | M | 530 | 2200 | 170 | b |
| | | M | 528 | 2350 | 168 | b |
| | | M | 526 | 2100 | 180 | b |
| | | M | 506 | 1750 | 130 | b |
| | | — | 446 | 1400 | — | c |
| 24 | 3.5 | F | 570 | 2200 | 200 | b |
| | | F | 532 | 2100 | 210 | a |
| | | F | 525 | 1900 | 155 | a |
| | | F | 523 | 2000 | 430 | a |
| | | F | 521 | 2000 | 187 | a |
| | | F | 520 | 2100 | 185 | a |
| | | F | 520 | 2000 | 208 | a |
| | | F | 506 | 1600 | 165 | a |
| | | F | 505 | 1800 | 180 | b |
| | | F | 500 | 1700 | 170 | b |
| | | M | 582 | 2800 | 242 | a |
| | | M | 520 | 1800 | 76 | b |
| | | M | 512 | 1700 | 84 | a |
| | | M | 485 | 1300 | 140 | a |
| | 4.0 | F | 560 | 1800 | 164 | b |
| | | F | 545 | 2100 | 200 | b |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion |
|---|---|---|---|---|---|---|
| 24 | 4.0 | F | 540 | 2100 | 170 | d |
| | | F | 540 | 2000 | 235 | b |
| | | F | 532 | 2200 | 220 | b |
| | | F | 528 | 1900 | 200 | b |
| | | F | 525 | 2000 | 225 | a |
| | | F | 525 | 1800 | 212 | d |
| | | F | 523 | 2000 | 159 | b |
| | | F | 518 | 2000 | 205 | b |
| | | F | 510 | 1700 | 140 | b |
| | | F | 508 | 1800 | 150 | b |
| | | F | 495 | 1400 | 100 | d |
| | | F | 482 | 1600 | 130 | d |
| | | F | 480 | 1500 | 140 | d |
| | | M | 575 | 2400 | 145 | a |
| | | M | 558 | 2500 | 210 | b |
| | | M | 551 | 2400 | 200 | b |
| | | M | 535 | 2000 | 170 | b |
| | | M | 533 | 2000 | 150 | b |
| | | M | 520 | 1800 | 150 | b |
| | | M | 512 | 1900 | 120 | b |
| | | M | 506 | 1400 | 64 | c |
| | | M | 500 | 1600 | 91 | b |
| | 4.3 | F | 560 | 2000 | 166 | b |
| | | F | 520 | 1800 | 192 | b |
| | | F | 490 | 1800 | 130 | d |
| | | M | 562 | 2500 | 235 | b |
| | | M | 561 | 2500 | 200 | a |
| | | M | 560 | 2500 | 175 | a |
| | | M | 523 | 1800 | 77 | b |
| | | M | 510 | 2000 | 162 | b |
| | | M | 498 | 1900 | 155 | a |
| 25 | 4.0 | M | 558 | 2250 | 220 | a |

2. Chum salmon, シロサケ

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 20 | 4.0 | F | 620 | 3200 | 225 | a | 5 |
| | | F | 620 | 3100 | 210 | a | 5 |
| | | F | 618 | 3100 | 165 | a | 5 |
| | | F | 606 | 2900 | 295 | a | 5 |
| | | F | 592 | 2800 | 205 | a | 5 |
| | | F | 558 | 2350 | 168 | a | 5 |
| | | F | 642 | 3600 | 125 | a | 4 |
| | | F | 638 | 3500 | 410 | a | 4 |
| | | F | 628 | 3000 | 81 | a | 4 |
| | | F | 624 | 3100 | 182 | a | 4 |
| | | F | 612 | 2800 | 60 | a | 4 |
| | | F | 610 | 3100 | 105 | a | 4 |
| | | F | 610 | 2950 | 160 | a | 4 |
| | | F | 606 | 3300 | 150 | a | 4 |
| | | F | 604 | 2800 | 94 | a | 4 |
| | | F | 600 | 3100 | 158 | a | 4 |
| | | F | 588 | 3050 | 145 | a | 4 |
| | | F | 586 | 3150 | 128 | a | 4 |
| | | F | 582 | 2400 | 49 | a | 4 |
| | | F | 576 | 2350 | 58 | a | 4 |
| | | F | 558 | 2250 | 91 | b | 4 |
| | | F | 554 | 2350 | 82 | b | 4 |
| | | F | 552 | 2100 | 68 | a | 4 |
| | | F | 550 | 2450 | 60 | a | 4 |
| | | F | 550 | 2300 | 125 | a | 4 |
| | | F | 550 | 2300 | 62 | b | 4 |
| | | F | 550 | 2200 | 62 | b | 4 |
| | | F | 520 | 1850 | 10 | b | 4 |
| | | F | 554 | 2100 | 13 | c | 3 |
| | | F | 550 | 2050 | 10 | b | 3 |
| | | F | 540 | 1900 | 15 | b | 3 |
| | | F | 536 | 1900 | 10 | b | 3 |
| | | F | 514 | 1650 | 8 | c | 3 |
| | | F | 504 | 1650 | 10 | c | 3 |
| | | M | 664 | 4100 | 95 | a | 4 |
| | | M | 620 | 3300 | 180 | a | 4 |
| | | M | 616 | 3200 | 82 | a | 4 |
| | | M | 606 | 2950 | 49 | a | 4 |
| | | M | 600 | 3250 | 115 | a | 4 |
| | | M | 589 | 2850 | 140 | a | 4 |
| | | M | 580 | 2900 | 176 | a | 4 |
| | | M | 579 | 2750 | 88 | a | 4 |
| | | M | 578 | 2650 | 82 | a | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 20 | 4.0 | M | 572 | 2600 | 158 | a | 4 |
| | | M | 552 | 2100 | 1 | b | 4 |
| | | M | 550 | 2300 | 90 | b | 4 |
| | | M | 542 | 2100 | 79 | a | 4 |
| | | M | 554 | 2150 | 1 | b | 3 |
| | | M | 536 | 1850 | 1 | c | 3 |
| | | M | 528 | 1900 | 27 | b | 3 |
| 21 | 3.5 | F | 558 | 2800 | 185 | a | 5 |
| | | F | 620 | 3100 | 130 | a | 4 |
| | | F | 550 | 2300 | 305 | b | 4 |
| | | F | 540 | 2300 | 220 | c | 4 |
| | | F | 500 | 1650 | 10 | c | 3 |
| | | F | 559 | 2900 | 120 | b | — |
| | | F | 552 | 2000 | 5 | b | — |
| | | M | 542 | 2200 | 86 | b | 4 |
| | 4.0 | F | 595 | 2800 | 325 | b | 5 |
| | | F | 615 | 2800 | 76 | b | 4 |
| | | F | 610 | 2590 | 7 | a | 4 |
| | | F | 582 | 2350 | 155 | a | 4 |
| | | F | 565 | 2500 | 120 | b | 4 |
| | | F | 560 | 2000 | 210 | c | 4 |
| | | F | 542 | 2100 | 50 | b | 4 |
| | | F | 541 | 2100 | 170 | a | 4 |
| | | F | 510 | 1850 | 91 | b | 4 |
| | | F | 475 | 1500 | 6 | c | 4 |
| | | F | 510 | 1680 | 325 | a | 3 |
| | | F | 475 | 1400 | 7 | c | 3 |
| | | M | 607 | 3200 | 200 | a | 4 |
| | | M | 512 | 1700 | 1 | a | 3 |
| | | — | 552 | 1900 | — | a | 3 |
| | | — | 520 | 1750 | — | c | 3 |
| | | — | 520 | 1500 | — | a | 3 |
| | 4.3 | F | 590 | 3250 | 300 | a | 5 |
| | | F | 537 | 1900 | 6 | a | 3 |
| | | F | 520 | 1600 | 10 | b | 3 |
| | | F | 505 | 1700 | 10 | b | 3 |
| | | F | 495 | 1550 | 5 | b | 3 |
| | | M | 612 | 3350 | 225 | a | 4 |
| | | — | 518 | 1650 | — | b | 3 |
| 23 | 3.5 | — | 641 | 3200 | — | a | 5 |
| | | — | 550 | 2200 | — | a | 4 |
| | | — | 530 | 2100 | — | a | 3 |
| | | — | 520 | 1850 | — | a | 3 |
| | | — | 517 | 1950 | — | a | 3 |
| | | — | 515 | 1950 | — | b | 3 |
| | | — | 485 | 1500 | — | b | 3 |
| | | — | 475 | 1700 | — | b | 3 |
| | | — | 470 | 1350 | — | b | 3 |
| | | — | 469 | 1300 | — | b | — |
| | 4.0 | — | 636 | 3050 | — | a | 6 |
| | | — | 615 | 3200 | — | a | 5 |
| | | — | 595 | — | — | a | 5 |
| | | — | 588 | 2550 | — | b | 5 |
| | | — | 487 | 1600 | — | c | 5 |
| | | — | 598 | 3000 | — | a | 4 |
| | | — | 590 | 2600 | — | a | 4 |
| | | — | 589 | 3100 | — | a | 4 |
| | | — | 585 | 2950 | — | a | 4 |
| | | — | 560 | 2600 | — | a | 4 |
| | | — | 543 | 2450 | — | a | 4 |
| | | — | 540 | 2150 | — | a | 4 |
| | | — | 525 | 1900 | — | b | 4 |
| | | — | 515 | 2300 | — | a | 4 |
| | | — | 574 | 2400 | — | a | 3 |
| | | — | 535 | 1600 | — | b | 3 |
| | | — | 520 | 1750 | — | b | 3 |
| | | — | 515 | 2000 | — | b | 3 |
| | | — | 513 | 1850 | — | b | 3 |
| | | — | 511 | 2100 | — | b | 3 |
| | | — | 628 | 3350 | — | a | — |
| | | — | 518 | 2000 | — | b | — |
| | | — | 480 | 1500 | — | c | — |
| | 4.3 | — | 591 | 2750 | — | b | 5 |
| | | — | 576 | 2500 | — | b | 5 |
| | | — | 594 | 2250 | — | a | 4 |
| | | — | 582 | 2700 | — | b | 4 |
| | | — | 572 | 2650 | — | b | 4 |
| | | — | 569 | 2600 | — | b | 4 |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 23 | 4.3 | — | 568 | 2500 | — | a | 4 |
| | | — | 564 | 2800 | — | b | 4 |
| | | — | 533 | 2400 | — | b | 4 |
| | | — | 512 | 2850 | — | b | 4 |
| | | — | 551 | 2150 | — | b | 3 |
| | | — | 510 | 1900 | — | c | 3 |
| | | — | 496 | 1750 | — | c | 3 |
| | | — | 529 | 2200 | — | b | — |
| 24 | 3.5 | F | 560 | 2400 | 323 | a | 5 |
| | | F | 610 | 3000 | 380 | a | 4 |
| | | F | 546 | 2000 | 350 | a | 4 |
| | | F | 545 | 2200 | 222 | a | 3 |
| | | M | 620 | 3200 | 58 | a | 5 |
| | | M | 596 | 2800 | 54 | b | 5 |
| | | M | 610 | 3200 | 1 | a | 4 |
| | | M | 590 | 2900 | 110 | a | 4 |
| | 4.0 | F | 649 | 3400 | 323 | a | 5 |
| | | F | 620 | 3100 | 145 | a | 5 |
| | | F | 615 | 3300 | 250 | a | 5 |
| | | F | 604 | 2800 | 342 | a | 5 |
| | | F | 602 | 2900 | 455 | a | 5 |
| | | F | 590 | 2800 | 316 | a | 5 |
| | | F | 588 | 2800 | 305 | b | 5 |
| | | F | 585 | 2800 | 290 | b | 5 |
| | | F | 577 | 2400 | 275 | b | 5 |
| | | F | 570 | 2300 | 275 | b | 5 |
| | | F | 552 | 2200 | 279 | b | 5 |
| | | F | 632 | 3000 | 310 | b | 4 |
| | | F | 620 | 3400 | 492 | a | 4 |
| | | F | 604 | 3000 | 351 | a | 4 |
| | | F | 602 | 2900 | 316 | a | 4 |
| | | F | 598 | 2600 | 330 | a | 4 |
| | | F | 595 | 3000 | 297 | a | 4 |
| | | F | 595 | 3000 | 287 | b | 4 |
| | | F | 590 | 2800 | 290 | a | 4 |
| | | F | 588 | 2400 | 317 | b | 4 |
| | | F | 586 | 2600 | 320 | b | 4 |
| | | F | 580 | 2600 | 295 | a | 4 |
| | | F | 580 | 2500 | 260 | b | 4 |
| 24 | 4.0 | F | 575 | 2500 | 300 | b | 4 |
| | | F | 575 | 2400 | 210 | a | 4 |
| | | F | 570 | 2800 | 270 | b | 4 |
| | | F | 570 | 2700 | 240 | c | 4 |
| | | F | 550 | 2400 | 240 | a | 4 |
| | | F | 540 | 2400 | 280 | b | 4 |
| | | F | 545 | 1900 | 10 | c | 3 |
| | | M | 655 | 4200 | 235 | a | 5 |
| | | M | 640 | 3800 | 254 | a | 5 |
| | | M | 608 | 2600 | 200 | b | 5 |
| | | M | 615 | 2700 | 1 | a | 4 |
| | | M | 613 | 3300 | 240 | a | 4 |
| | | M | 605 | 3000 | 41 | a | 4 |
| | | M | 583 | 2500 | 160 | a | 4 |
| | | M | 575 | 2500 | 170 | a | 4 |
| | | — | 585 | 3000 | — | a | 5 |
| | 4.3 | F | 592 | 2780 | 285 | b | 4 |
| 25 | 4.0 | F | 648 | 3150 | 407 | a | 5 |
| | | F | 600 | 2900 | 440 | b | 5 |
| | | F | 576 | 2450 | 225 | b | 4 |
| | | M | 528 | 1750 | 1 | b | 3 |
| | 4.3 | F | 609 | 3000 | 255 | b | 4 |

3. Sockeye salmon, ベニサケ

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 20 | 4.0 | F | 598 | 3100 | 175 | a | $6_3$ |
| | | F | 582 | 2900 | 93 | a | $6_3$ |
| | | F | 590 | 2750 | 207 | a | $5_2$ |
| | | M | 676 | 4500 | 89 | a | $6_3$ |
| 21 | 3.5 | F | 618 | 3050 | 130 | a | $7_4$ |
| | | F | 595 | 3300 | 115 | a | $7_4$ |
| | | F | 624 | 3700 | 385 | a | $6_2$ |
| | | F | 635 | 3200 | 180 | a | $6_3$ |
| | | F | 568 | 2410 | 86 | b | $5_3$ |
| | | F | 550 | 3250 | 150 | b | $5_3$ |
| | | F | 541 | 3000 | 110 | a | $5_3$ |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 21 | 3.5 | F | 538 | 2100 | 115 | a | $5_3$ |
| | | F | 531 | 1950 | 87 | b | $5_3$ |
| | | F | 525 | 1670 | 60 | b | $5_3$ |
| | | F | 522 | 1700 | 91 | b | $5_3$ |
| | | F | 513 | 1900 | 150 | a | $5_3$ |
| | | F | 598 | 3020 | 115 | b | — |
| | | F | 513 | 2420 | 190 | b | — |
| | | M | 582 | 3010 | 84 | b | $5_3$ |
| | | M | 578 | 3000 | 87 | a | $5_3$ |
| | | M | 553 | 2350 | 120 | a | $5_3$ |
| | | M | 544 | 2450 | 75 | a | $5_3$ |
| | | M | 536 | 2370 | 57 | a | $5_3$ |
| | | M | 511 | 2000 | 37 | a | $5_3$ |
| | | M | 538 | 2070 | 80 | b | $4_2$ |
| | | M | 585 | 2520 | 85 | a | — |
| | | — | 542 | 1900 | — | b | $5_2$ |
| | 4.0 | F | 671 | 3750 | 115 | a | $7_4$ |
| | | F | 691 | 3920 | 220 | a | $6_3$ |
| | | F | 635 | 3600 | 110 | a | $6_3$ |
| | | F | 620 | 3250 | 105 | a | $6_3$ |
| | | F | 615 | 3170 | 89 | a | $6_3$ |
| | | F | 603 | 2850 | 100 | a | $6_3$ |
| | | F | 565 | 2750 | 120 | a | $6_3$ |
| | | F | 550 | 2250 | 140 | a | $5_3$ |
| | | F | 538 | 1750 | 145 | b | $5_3$ |
| | | F | 529 | 2000 | 185 | b | $4_2$ |
| | | M | 579 | 2200 | 73 | b | $6_3$ |
| | | M | 570 | 2530 | 92 | b | $6_3$ |
| | | M | 656 | 3400 | 93 | a | $5_2$ |
| | | M | 608 | 2900 | 39 | a | $5_2$ |
| | | M | 604 | 3100 | 29 | a | $5_3$ |
| | | M | 562 | 2000 | 80 | b | $5_3$ |
| | | M | 548 | 2150 | 92 | b | $5_3$ |
| | 4.3 | F | 545 | 1800 | 272 | a | $6_3$ |
| | | F | 568 | 2520 | 150 | a | $5_3$ |
| | | F | 546 | 2150 | 115 | a | — |
| | | M | 650 | 3700 | 50 | a | $7_4$ |
| | | M | 605 | 2900 | 55 | a | $7_4$ |
| | | M | 583 | 2850 | 33 | a | $6_4$ |
| 21 | 4.3 | M | 530 | 2100 | 86 | a | $5_3$ |
| | | M | 527 | 1900 | 86 | a | $5_3$ |
| 23 | 3.5 | F | 545 | 2350 | 110 | a | $5_3$ |
| | | F | 541 | 2100 | 125 | a | — |
| | | M | 666 | 3400 | 94 | a | $7_4$ |
| | | M | 638 | 3450 | 85 | a | $7_4$ |
| | | — | 540 | 2150 | — | a | $5_3$ |
| | 4.0 | F | 612 | 3150 | 140 | a | $7_4$ |
| | | F | 590 | 2500 | 120 | a | $7_4$ |
| | | F | 565 | 2500 | 100 | b | $7_4$ |
| | | F | 623 | 3450 | 190 | a | $6_3$ |
| | | F | 606 | 3150 | 145 | a | $6_3$ |
| | | F | 575 | 2800 | 190 | a | $6_3$ |
| | | F | 538 | 2100 | 85 | b | $6_3$ |
| | | F | 518 | 2350 | 140 | a | $6_4$ |
| | | F | 562 | 2750 | 135 | a | $5_3$ |
| | | F | 562 | 2400 | 120 | b | $5_3$ |
| | | F | 560 | 2600 | 105 | a | $5_3$ |
| | | F | 555 | 2250 | 145 | b | $5_3$ |
| | | F | 552 | 2400 | 130 | b | $5_3$ |
| | | F | 537 | 2050 | 90 | b | $5_3$ |
| | | F | 530 | 2400 | 120 | a | $5_3$ |
| | | F | 530 | 2200 | 100 | b | $5_3$ |
| | | F | 530 | 2150 | 110 | b | $5_3$ |
| | | F | 585 | 2600 | 160 | a | — |
| | | M | 652 | 3350 | 100 | a | $6_3$ |
| | | M | 620 | 3400 | 96 | a | $6_3$ |
| | | M | 591 | 3050 | 82 | a | $6_3$ |
| | | M | 562 | 2700 | 90 | a | $6_4$ |
| | | M | 549 | 2500 | 42 | b | $5_3$ |
| | | M | 553 | 2350 | 80 | a | $5_3$ |
| | | M | 552 | 2150 | 80 | a | $5_3$ |
| | | M | 530 | 2100 | 70 | b | $5_3$ |
| | | M | 522 | 2350 | 36 | b | — |
| | 4.3 | F | 633 | 3100 | 130 | a | $6_3$ |
| | | F | 600 | 3000 | 107 | a | $6_3$ |
| | | F | 592 | 2850 | 96 | a | $5_2$ |
| | | M | 583 | 3000 | 68 | a | $7_4$ |
| | | M | 654 | 3500 | 96 | a | $6_3$ |

Table 42. (Continued)

| No. of fishing | Mesh (Sun) | Sex | F. L. (mm) | B. W. (g) | G. W. (g) | Netted body portion | Age |
|---|---|---|---|---|---|---|---|
| 23 | 4.3 | M | 615 | 3150 | 68 | a | $6_3$ |
| | | M | 638 | 3400 | 70 | a | $6_3$ |
| | | M | 588 | 2700 | 72 | a | $5_3$ |
| 24 | 3.5 | F | 610 | 3000 | 122 | a | $7_4$ |
| | | F | 652 | 3800 | 215 | a | $6_3$ |
| | | F | 597 | 3100 | 115 | a | $6_3$ |
| | | F | 612 | 2500 | 218 | a | $5_2$ |
| | | F | 605 | 2800 | 180 | a | $5_2$ |
| | | F | 575 | 2600 | 281 | a | $5_2$ |
| | | F | 575 | 2600 | 95 | a | $5_3$ |
| | | F | 572 | 2100 | 200 | a | $5_3$ |
| | | F | 543 | 2000 | 350 | b | $5_3$ |
| | | F | 592 | 2500 | 295 | a | — |
| | | F | 545 | 2100 | 120 | a | — |
| | | M | 595 | 2600 | 80 | a | $7_4$ |
| | | M | 535 | 1800 | 62 | b | $5_3$ |
| | | M | 520 | 1800 | 140 | a | $5_3$ |
| | | M | 512 | 1500 | 48 | a | $5_3$ |
| | 4.0 | F | 615 | 3400 | 120 | a | $7_4$ |
| | | F | 590 | 3000 | 90 | b | $7_4$ |
| | | F | 561 | 2100 | 210 | b | $7_4$ |
| | | F | 613 | 3200 | 153 | a | $6_3$ |
| | | F | 600 | 3100 | 182 | a | $6_3$ |
| 24 | 4.0 | F | 540 | 2000 | 115 | b | $6_4$ |
| | | F | 585 | 2800 | 489 | a | $5_2$ |
| | | F | 550 | 2200 | 156 | b | $5_3$ |
| | | F | 542 | 2300 | 127 | b | $5_3$ |
| | | F | 582 | 2800 | 349 | a | — |
| | | M | 670 | 4500 | 115 | a | $7_4$ |
| | | M | 665 | 4400 | 64 | a | $6_3$ |
| | | M | 640 | 3800 | 38 | a | — |
| | | M | 621 | 3400 | 120 | a | — |
| | 4.3 | F | 652 | 3600 | 140 | a | $7_4$ |
| | | F | 612 | 3200 | 187 | a | $6_3$ |
| | | F | 602 | 3200 | 270 | a | $6_3$ |
| | | F | 525 | 2100 | 92 | b | $6_4$ |
| | | F | 560 | 3100 | 160 | a | $5_3$ |
| | | F | 614 | 2900 | 372 | b | — |
| | | F | 510 | 1600 | 105 | b | — |
| | | M | 653 | 3600 | 78 | a | $6_3$ |
| | | M | 615 | 3400 | 70 | a | $6_3$ |
| 25 | 4.0 | F | 605 | 2800 | 170 | a | $5_2$ |
| | | F | 551 | 2250 | 95 | b | $5_3$ |
| | | M | 661 | 3750 | 72 | a | $6_3$ |
| | | M | 458 | 1300 | 48 | c | $6_4$ |
| | | M | 636 | 3950 | 83 | a | $5_2$ |

## Ⅱ. Distribution of body length
## (体 長 分 布)

Table 43. Distribution of length of salmon in the "Hokusei Maru" cruise

| Species | No. of fishing | Fork length | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 38.5 | 39.5 | 40.5 | 41.5 | 42.5 | 43.5 | 44.5 | 45.5 | 46.5 | 47.5 |
| Pink salmon | 1 | | | | 4 | 4 | 8 | 6 | 5 | 4 | 7 |
| | 2 | | | 25 | 57 | 140 | 226 | 278 | 243 | 135 | 89 |
| | 3 | | 3 | 15 | 39 | 72 | 87 | 110 | 88 | 58 | 42 |
| | 4 | 1 | 4 | 14 | 16 | 34 | 72 | 68 | 94 | 62 | 34 |
| | 5 | | | 4 | 2 | 3 | 5 | 5 | 9 | 3 | 1 |
| | 6 | | | | | | 4 | 6 | 7 | 10 | 7 |
| | 7 | | | 4 | 9 | 30 | 17 | 13 | 10 | 3 | 3 |
| | 8 | | | 6 | 4 | 25 | 35 | 17 | 15 | 13 | 5 |
| | 9 | 1 | 1 | 13 | 80 | 141 | 180 | 164 | 128 | 66 | 51 |
| | 10 | | 3 | 12 | 22 | 67 | 78 | 78 | 50 | 43 | 29 |
| | 11 | | 1 | 3 | 4 | 7 | 20 | 5 | 10 | 8 | 3 |
| | 12 | | | | 1 | 2 | 5 | 8 | 11 | 21 | 10 |
| | 13 | | | 1 | | 1 | 2 | 8 | 11 | 20 | 28 |
| | 14 | | | | | 2 | 2 | 6 | 11 | 22 | 38 |
| | 15 | | | | | | | | | | not |
| | 16 | | | 1 | | 1 | 2 | 1 | 3 | 7 | 9 |
| | 17 | | | | | 1 | | | 1 | 6 | 7 |
| | 18 | | | | | | | 2 | | 2 | 1 |
| | 19 | | | | | 1 | 1 | 1 | 6 | 7 | 4 |
| | 20 | | | | | | | | | | 2 |
| | 21 | | | | | | | | 1 | | 3 |
| | 23 | | | | | | | 1 | | | |
| | 24 | | | | | | | | | | |
| | 25 | | | | | | | | | | |
| | Total | 2 | 12 | 98 | 238 | 531 | 744 | 777 | 698 | 490 | 373 |

8 (1–4) to the North Pacific and Okhotsk Sea in June–August 1960

| (cm) | | | | | | | | | | | | n |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48.5 | 49.5 | 50.5 | 51.5 | 52.5 | 53.5 | 54.5 | 55.5 | 56.5 | 57.5 | 58.5 | 59.5 | |
| 4 | 1 | | | | | | | | | | | 43 |
| 36 | 20 | 6 | 4 | | 1 | | | | | | | 1260 |
| 22 | 6 | 4 | 2 | | 1 | | | | | | | 549 |
| 30 | 13 | 9 | 3 | | 1 | | | | | | | 455 |
| 1 | | 2 | | | | | | | | | | 35 |
| 8 | 2 | 4 | 4 | 1 | | | | | | | | 53 |
| 3 | 1 | | | | | | | | | | | 93 |
| 6 | 2 | | | | | | | | | | | 128 |
| 32 | 17 | 4 | 6 | | | | | | | | | 879 |
| 14 | 8 | 8 | 1 | 2 | | | | | | | | 415 |
| 4 | 3 | 1 | 1 | 1 | | | | | | | | 71 |
| 21 | 14 | 9 | 6 | 4 | 2 | 1 | 1 | | 1 | | | 117 |
| 16 | 18 | 8 | 4 | | 3 | | | | | | | 120 |
| 39 | 19 | 11 | 9 | 1 | 1 | | | | | | | 161 |
| measured | | | | | | | | | | | | |
| 3 | 6 | 2 | | | | | | | | | | 35 |
| 8 | 9 | 6 | 2 | 2 | | | | | | | | 42 |
| | 1 | 1 | 1 | | | | | | | | | 8 |
| 12 | 13 | 8 | 1 | 1 | 1 | | | | | | | 56 |
| 1 | 2 | 2 | 3 | | 1 | 3 | | | | 2 | | 16 |
| | | | 4 | 1 | 1 | 1 | 1 | | | | | 12 |
| 2 | 3 | 7 | 8 | 12 | 10 | 5 | | 1 | | 1 | 1 | 51 |
| 3 | 3 | 6 | 5 | 13 | 4 | 3 | 2 | 5 | 2 | 1 | | 47 |
| | | | | | | | 1 | | | | | 1 |
| 265 | 161 | 98 | 64 | 38 | 26 | 13 | 5 | 6 | 3 | 4 | 1 | 4647 |

Table 43.

| Species | No. of fishing | Fork length | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 42.5 | 43.5 | 44.5 | 45.5 | 46.5 | 47.5 | 48.5 | 49.5 | 50.5 | 51.5 | 52.5 | 53.5 | 54.5 |
| Chum salmon | 1 | | | | | | | | | | | | 1 | 1 |
| | 2 | | | | | | | | 2 | 3 | 3 | 11 | 5 | 8 |
| | 3 | | | | | | | | 1 | 1 | 5 | 4 | 13 | 12 |
| | 4 | | | | | | | | | | 1 | 5 | 4 | 10 |
| | 5 | | | | | | | | | | | 1 | | 3 |
| | 6 | | | | | | | | | | | | | |
| | 7 | | | | | | | | | 4 | 1 | 1 | 3 | 4 |
| | 8 | | | | | | | | 5 | 12 | 8 | 15 | 24 | 14 |
| | 9 | | | | | | 1 | 6 | 5 | 7 | 21 | 24 | 33 | 44 |
| | 10 | 1 | | | | | | | 1 | 3 | | 3 | 3 | 5 |
| | 11 | | | | | | | | 1 | | 2 | 3 | 2 | 7 |
| | 12 | | | | | 1 | | | 1 | 2 | 5 | 4 | 5 | 8 |
| | 13 | | | | 1 | | 2 | 3 | 3 | 6 | | 7 | 6 | 5 |
| | 14 | | | | 2 | | | 4 | 3 | 9 | 11 | 12 | 13 | 12 |
| | 15 | | | | | | | 1 | | | | | | |
| | 16 | | | | | | 2 | 1 | | 6 | 7 | 12 | 5 | 15 |
| | 17 | | | | | | | 1 | 1 | 2 | 2 | 4 | 6 | 4 |
| | 18 | | | | | | | | | | | | 2 | 1 |
| | 19 | | | | | | | 1 | 2 | 2 | 9 | 11 | 11 | 21 |
| | 20 | | | | | | | | | 1 | 1 | 2 | 2 | 2 |
| | 21 | | | | | | 1 | | 1 | 3 | 4 | 2 | 1 | 4 |
| | 23 | | | | | 2 | 2 | 3 | | | 9 | 4 | 3 | 2 |
| | 24 | | | | | | | | | | | | | 4 |
| | 25 | | | | | | | | | | | 1 | | |
| | Total | 1 | | | 3 | 3 | 8 | 20 | 26 | 61 | 89 | 126 | 142 | 186 |

(Continued)

| (cm) | | | | | | | | | | | | | | | n |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55.5 | 56.5 | 57.5 | 58.5 | 59.5 | 60.5 | 61.5 | 62.5 | 63.5 | 64.5 | 65.5 | 66.5 | 67.5 | 68.5 | 69.5 | |
| 1 | 5 | 7 | 1 | | | | 1 | | | | | | | | 17 |
| 21 | 17 | 7 | 8 | 5 | 5 | 4 | 1 | 1 | | 1 | | | | | 102 |
| 6 | 6 | 6 | 2 | 5 | 5 | | 1 | | | | | | | | 67 |
| 16 | 10 | 12 | 12 | 11 | 6 | 2 | 1 | | 1 | | 1 | | | | 92 |
| 12 | 4 | 10 | 8 | 8 | 5 | | 2 | | 2 | | | | | 1 | 56 |
| 2 | | | 1 | 1 | 1 | | | 1 | 1 | | | | | | 7 |
| | | | 1 | 1 | | | | | | | | | | | 15 |
| 21 | 9 | 6 | 6 | 7 | 1 | 2 | | 2 | | | | | | | 132 |
| 31 | 33 | 21 | 17 | 16 | 8 | 2 | 3 | | | | | | | | 272 |
| 7 | 3 | 7 | 7 | 3 | 2 | 1 | | | | | | | | | 46 |
| 6 | 6 | 3 | 4 | 8 | 7 | 2 | 5 | 4 | 3 | | | | | | 63 |
| 8 | 6 | 9 | 6 | 8 | 5 | 4 | 2 | | 2 | | | | | | 76 |
| 6 | 5 | 3 | 3 | 6 | | | | 1 | 1 | | | | | | 58 |
| 15 | 17 | 12 | 10 | 9 | 7 | 5 | 3 | 2 | | | | | | | 146 |
| | 1 | 1 | | 1 | 1 | | 3 | | 1 | | | | | | 9 |
| 19 | 13 | 14 | 11 | 14 | 11 | 2 | 5 | 2 | 2 | | | | | | 141 |
| 13 | 18 | 12 | 13 | 11 | 10 | 6 | 3 | 5 | 1 | | | | | | 112 |
| 2 | | 2 | 2 | | 1 | 2 | 1 | 1 | 1 | | | | 1 | | 16 |
| 29 | 40 | 54 | 51 | 34 | 40 | 20 | 16 | 5 | 4 | 1 | 1 | 1 | | | 353 |
| 13 | | 4 | 5 | 1 | 6 | 5 | 5 | 1 | 1 | | 1 | | | | 50 |
| 5 | 2 | 1 | 1 | 2 | 1 | 3 | 1 | | | | | | | | 32 |
| 2 | 4 | 3 | 4 | 6 | | 1 | 1 | 1 | 1 | | | | | | 48 |
| 2 | 1 | 7 | 8 | 8 | 6 | 5 | 3 | 1 | 2 | 1 | | | | | 48 |
| | | 1 | | | 2 | | | | 1 | | | | | | 5 |
| 237 | 200 | 202 | 181 | 165 | 130 | 66 | 57 | 27 | 24 | 3 | 3 | 1 | 1 | 1 | 1963 |

Table 43.

| Species | No. of fishing | Fork length | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 45.5 | 46.5 | 47.5 | 48.5 | 49.5 | 50.5 | 51.5 | 52.5 | 53.5 | 54.5 | 55.5 |
| Sockeye salmon | 7 | | | | | | 2 | | 1 | | 1 | 1 |
| | 8 | | | | | | 1 | 1 | | 2 | 1 | 1 |
| | 9 | | | | 1 | 1 | 4 | 4 | 3 | 3 | 4 | 3 |
| | 10 | | | | | | 1 | 1 | 1 | | | |
| | 12 | | | | | | | | | | | 1 |
| | 13 | | | | | | 1 | 2 | 1 | 6 | 2 | 2 |
| | 14 | | | | | 1 | 5 | 3 | 2 | 2 | 2 | 4 |
| | 15 | | | | | 1 | 1 | 1 | 1 | 2 | 3 | 2 |
| | 16 | | 1 | | 3 | | 4 | 3 | 5 | 3 | 1 | 2 |
| | 17 | | | | | | 3 | 3 | 7 | 7 | 5 | 5 |
| | 18 | | | 1 | | 1 | 2 | 7 | 4 | 7 | | 2 |
| | 19 | | | | | 1 | 1 | | | 4 | 3 | 4 |
| | 20 | | | | | | | | | | | |
| | 21 | | | | | | | 3 | 4 | 6 | 6 | 3 |
| | 23 | | | | | | | 1 | 1 | 6 | 4 | 4 |
| | 24 | | | | | | | 3 | 1 | 1 | 4 | 1 |
| | 25 | 1 | | | | | | | | | | 1 |
| | Total | 1 | 1 | 1 | 4 | 5 | 25 | 32 | 31 | 49 | 36 | 36 |

(Continued)

| (cm) | | | | | | | | | | | | | | n |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 56.5 | 57.5 | 58.5 | 59.5 | 60.5 | 61.5 | 62.5 | 63.5 | 64.5 | 65.5 | 66.5 | 67.5 | 68.5 | 69.5 | |
| 1 | 2 | | 1 | 1 | 1 | | | | | | | | | 11 |
| 3 | 2 | 9 | 5 | 2 | 4 | | | | | | | 1 | | 32 |
| 3 | 11 | 1 | 12 | 5 | 9 | 6 | 4 | 3 | | | | | | 77 |
| 2 | | | 1 | | | | | | | | | | | 6 |
| | | | | | 1 | | | 1 | | | | | | 3 |
| 5 | 2 | 4 | 1 | 3 | 1 | 1 | 2 | | | | | | | 33 |
| 3 | 6 | 4 | 2 | 2 | 1 | 3 | 2 | | 2 | | | | | 44 |
| 3 | 3 | 2 | | 2 | 3 | 2 | | | 1 | 1 | | | | 28 |
| 1 | 2 | 5 | | 1 | | 2 | | 1 | | | | | | 34 |
| 6 | 4 | 6 | 4 | 4 | 3 | 2 | | | 3 | 2 | | | | 64 |
| | 4 | | | 1 | 3 | 1 | 1 | | | 1 | | 1 | | 36 |
| 2 | | 1 | 4 | 5 | 1 | 1 | 2 | | | 1 | | | | 30 |
| | | 1 | 2 | | | | | | | | 1 | | | 4 |
| 4 | 3 | 3 | 2 | 4 | 2 | 2 | 2 | | 2 | | 1 | | 1 | 48 |
| 5 | 1 | 3 | 3 | 2 | 2 | 2 | 3 | | 2 | 1 | | | 1 | 41 |
| 2 | 3 | 2 | 4 | 3 | 7 | 1 | | 1 | 3 | 1 | 1 | | | 38 |
| | | | | 1 | | | 1 | | | 1 | | | | 5 |
| 40 | 43 | 41 | 41 | 36 | 38 | 23 | 17 | 6 | 13 | 8 | 3 | 2 | 2 | 534 |

## Ⅲ. Distribution of body length in each sample caught with three different mesh size nets (目合別体長分布)

Data of Fishing, No. 7 (June 26) and No. 15 (July 17) were omitted from the table 44, because in these fishings measurements of fish body were not made separately with mesh sizes.

Table 44. Distribution of length of salmon taken in cruies 8 (1–4) to the North Pacific and

| Mesh size of the net used (Sun) | Species | Fork length | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 38.5 | 39.5 | 40.5 | 41.5 | 42.5 | 43.5 | 44.5 | 45.5 | 46.5 | 47.5 | 48.5 | 49.5 | 50.5 | 51.5 |
| 3.5 | Pink salmon | 2 | 9 | 66 | 162 | 279 | 301 | 244 | 156 | 97 | 78 | 44 | 20 | 15 | 11 |
| | Chum salmon | | | | | | | | 1 | 2 | 4 | 6 | 7 | 14 | 18 |
| | Sockeye salmon | | | | | | | | | | | 2 | | 4 | 8 |
| | Total | 2 | 9 | 66 | 162 | 279 | 301 | 244 | 157 | 99 | 82 | 52 | 27 | 33 | 37 |
| 4.0 | Pink salmon | | 3 | 27 | 63 | 213 | 385 | 477 | 442 | 308 | 219 | 162 | 95 | 60 | 36 |
| | Chum salmon | | | | | 1 | | | 1 | 1 | 3 | 12 | 14 | 35 | 48 |
| | Sockeye salmon | | | | | | | | 1 | | 1 | 2 | 3 | 15 | 21 |
| | Total | | 3 | 27 | 63 | 214 | 385 | 477 | 444 | 309 | 223 | 176 | 112 | 110 | 105 |
| 4.3 | Pink salmon | | | 1 | 4 | 9 | 41 | 43 | 90 | 82 | 73 | 56 | 45 | 23 | 17 |
| | Chum salmon | | | | | | | | 1 | | 1 | 1 | 5 | 8 | 22 |
| | Sockeye salmon | | | | | | | | | 1 | | | 1 | 3 | 2 |
| | Total | | | 1 | 4 | 9 | 41 | 43 | 91 | 83 | 74 | 57 | 51 | 34 | 41 |

three different mesh size nets in the "Hokusei Maru"
Okhotsk Sea in June–August 1960

| (cm) | | | | | | | | | | | | | | | | | | n |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52.5 | 53.5 | 54.5 | 55.5 | 56.5 | 57.5 | 58.5 | 59.5 | 60.5 | 61.5 | 62.5 | 63.5 | 64.5 | 65.5 | 66.5 | 67.5 | 68.5 | 69.5 | |
| 12 | 2 | | | | 1 | 1 | 1 | | | | | | | | | | | 1501 |
| 19 | 12 | 29 | 34 | 18 | 8 | 9 | 10 | 8 | 3 | 5 | 2 | 2 | | | | | | 211 |
| 6 | 10 | 8 | 2 | 4 | 8 | 6 | 7 | 5 | 3 | 1 | 2 | | 2 | 1 | | | | 79 |
| 37 | 24 | 37 | 36 | 22 | 17 | 16 | 18 | 13 | 6 | 6 | 4 | 2 | 2 | 1 | | | | 1791 |
| 16 | 15 | 11 | 4 | 1 | 1 | 2 | | | | | | | | | | | | 2540 |
| 69 | 81 | 105 | 157 | 125 | 142 | 135 | 116 | 93 | 47 | 41 | 17 | 16 | 3 | 2 | 1 | 1 | | 1266 |
| 17 | 31 | 18 | 24 | 24 | 24 | 20 | 25 | 22 | 20 | 13 | 10 | 4 | 4 | 6 | 3 | 2 | 2 | 312 |
| 102 | 127 | 134 | 185 | 150 | 167 | 157 | 141 | 115 | 67 | 54 | 27 | 20 | 7 | 8 | 4 | 3 | 2 | 4118 |
| 10 | 9 | 2 | 1 | 5 | 1 | 1 | | | | | | | | | | | | 513 |
| 37 | 46 | 48 | 46 | 56 | 51 | 36 | 37 | 28 | 16 | 8 | 8 | 5 | | 1 | | | 1 | 462 |
| 6 | 6 | 6 | 7 | 8 | 6 | 13 | 8 | 6 | 11 | 7 | 5 | 2 | 6 | | | | | 104 |
| 53 | 61 | 56 | 54 | 69 | 58 | 50 | 45 | 34 | 27 | 15 | 13 | 7 | 6 | 1 | | | 1 | 1079 |

# VI

# FISHERIES MUSEUM ON THE CAMPUS

(Fig. 1)

(水産学部構内の水産博物館)

At the time when the predecessor of the Faculty of Fisheries, Hokkaido University, then located in Sapporo, the School had a large room devoted for the exhibition of numerous articles connected with Fisheries Sciences and Industries. These and other newly added articles were displayed in the new school building at Hakodate after the School had been moved there in 1935 from Sapporo to become the Hakodate College of Fisheries. During the period of occupation after World War II, the School authorities had an urgent order from the U. S. Occupation Army in October 1945 to evacuate the school building for their use, which meant the clearing away of all books, instruments, specimens and other facilities within 72 hours. To our great regret, many items, including valuable articles for exhibition, were lost or damaged in the confusion of this sudden evacuation. After the School returned to the building in January 1947, the articles for exhibition had been preserved safely stored in packages for nearly ten years. Meanwhile, the School again became part of the Hokkaido University as the Faculty of Fisheries located in Hakodate in 1949. This change of organization imposed a need for much space for laboratory facilities, so there were no spare rooms for exhibition.

On the occasion of the semi-centennial of the School in 1957, the Hokusui Alumni Society gathered $1,600 (¥6,000,000) and built a fine museum building, a total of 361 square meters (121 Tsubo), constructed of concrete blocks, on the campus of the Faculty of Fisheries. It was donated to the School on December 25, 1957. The contribution by the Society deserves our great appreciation as it benefits much the education of students and the general public. Now the specimens and models preserved for so long a time in the dark were taken out and repaired for exhibition in this new museum. In addition, certain numbers of good specimens and models belonging to the Hakodate Branch of the Hokkaido Fisheries Experimental Station were placed in charge of the museum for display through the courtesy of the Branch authorities.

In the new museum specimens of marine plants and animals, models of fishing boats and gears, specimens of marine products, models of marine products factories, new navigation instruments and many other things are displayed. The museum is opened on weekdays not only to college students but also the general public.

札幌に於ける北海道帝国大学水産専門部時代，校舎の一室に整然と陳列展示されていた，多くの貴重な水産に関する標本類模型類は，函館に移転して函館高等水産学校（後に函館水産専門学校）となつた後も，新校舎に於て展示は続けられ，学生及び市民教育の参考に供せられていたことは当時を知る人の記憶に新たなところである。然るに終戦後昭和20年10月突然進駐軍より校舎接収命令をうけ，72時間内に校舎を立退かなければならなかつた為，移転に際し幾多の貴重な展示品は紛失し又は毀損された。昭和22年1月校舎復帰後も標本展示室は再開されず，その後学制改革により北海道大学水産学部となるに及び，研究室を増加する必要のため，校舎内にの展示室を設ける余裕は全くなくなつて了つた。

昭和34年本学部創基50年に当り，北水同窓会は会員並びに諸会社より募金し，600万円を以て延121坪

## *VI. Fisheries Museum on the Campus*

の鉄骨コンクリートブロック建築の瀟洒たる博物館を学部構内に建築し，昭和34年12月25日学部に贈られた。茲に於て久しく死蔵されていた標本模型類を展示すると共に，更に展示品を加えるべく努めている。尚北海道立水産試験場函館支場標本陳列室にあつた多数の貴重な標本類が，同支場の改築に当り展示室が設けられなくなつたので全部本学部新博物館に出品されることとなり，新博物館の内容を一層充実せしめることとなった。

# VII

# NEW LABORATORY BUILDING (NAKABE HALL) OF NORTH PACIFIC FISHERIES INSTITUTE ON THE CAMPUS

(Figs. 2, 31)

(水産学部構内に新築された中部北洋研究館)

A fine three-storied laboratory building of modern style was recently built on the campus of the Faculty of Fisheries with the object of housing all the necessary facilities for research on the North Pacific oceanography and fisheries.

The cost of the construction was donated by Taiyogyogyo Co., Ltd. and the necessary facilities of water supply, draining, coal gas system, sanitation and heating was donated by the Taitogyorui Co., Ltd. and Taitoseiko Co., Ltd. A special budget for purchasing furnitures and appliances was supplied by the Ministry of Education, and the funds to cover the cost of the new laboratory equipment was donated by the Hokuyosuisan Co., Ltd., Hakodate Kokaigyogyo Co., Ltd., Hokkaido Gyogyokosha Co., Ltd. and Hayashikane Suisankogyo Co., Ltd. The donations by the above-mentioned companies and the special consideration given by the Ministry of Education are greatly appreciated by the Faculty of Fisheries. The construction of the building was completed on September 20, 1960, and the building was named Nakabe Hall after the name of the donator, Mr. K. Nakabe, President of Taiyogyogyo Co., Ltd. In this building the laboratories are divided into four sections, *i.e.*, physical oceanography, chemical oceanography, biological oceanography and fisheries biology.

今回大洋漁業株式会社の寄附により本学部構内に3階建延200坪コンクリート建築近代様式の研究館が建設され，給排水，ガス，衛生，煖房設備は大都魚類株式会社並びに泰東製綱株式会社の寄附によつて整えられた。又文部省から家具調度設備費が支出され，更に研究器械購入費として，北洋水産株式会社，函館公海漁業株式会社，北海道漁業公社株式会社，林兼水産工業株式会社から寄附があつた。本館は中部北洋研究館と名付けられ，本学部の北洋研究のために使用されるものであるが，ここに完備せる研究施設が与えられたことは真に感謝に耐えない。落成寄贈式は昭和35年9月20日盛大に行われた。本学部の北洋研究組織は海洋，海洋生物，水産資源，漁業の4部門より構成されているが，本研究館にはこの中海洋物理，海洋化学，海洋生物，水産資源の4研究室がおかれる予定である。

Expenditures of construction and facilities
(建築費附属設備費其他)

| | | |
|---|---|---|
| Building (建物) | ¥ 15,000,000 ($ 41,700) | donated by Taiyogyogyo Co., Ltd. |
| Water supply, draining, coal gas system and sanitation (給排水，ガス，衛生設備) | ¥ 3,000,000 ($ 8,300) | donated by Taitogyorui Co., Ltd. |
| Heating system (煖房設備) | ¥ 2,000,000 ($ 5,600) | donated by Taitoseiko Co., Ltd. |
| Furnitures and appliances (家 具 調 度) | ¥ 1,576,000 ($ 4,400) | supplied by Ministry of Education |
| Laboratory equipment (研究器械) | ¥ 4,860,000 ($ 13,500) | donated by Hokuyosuisan Co., Ltd., Hakodate Kokaigyogyo Co. Ltd., |

Hokkaido Gyogyokosha Co., Ltd. and
Hayashikane Suisankogyo Co., Ltd.

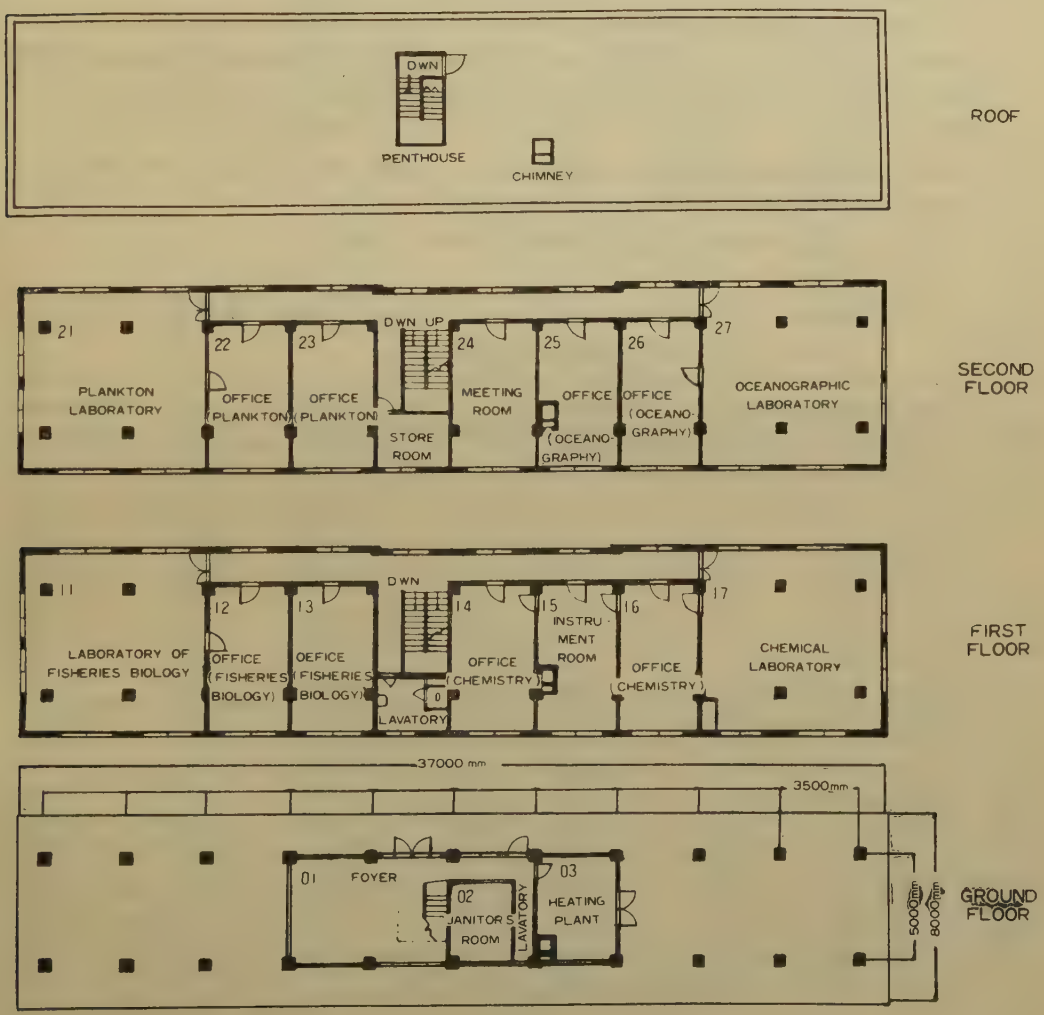
Total ¥ 26,436,000 ($ 73,500)

Rooms in the building
(建 物 要 目)

Ground floor (地階): 50 square meters (15 Tsubo); Foyer, heating plant, jenitor's room, lavatory
First floor (1階): 296 square meters (90 Tsubo); Two laboratories, four office rooms, one instrument room, lavatory
Second floor (2階): 296 square meters (90 Tsubo); Two laboratories, four office rooms, one meeting room, one small store room
Roof (屋上): Penthouse: 8.4 square meters (4 Tsubo)

Total : 650.4 square meters (199 Tsubo)

Fig. 31. Plan of Nakabe Hall (North Pacific Fisheries Institute)



# VIII

# CORRECTION AND SUPPLEMENT

## (訂正及び補遺)

1. Additional note to "Data on wet displacement volume and wet weight of plankton samples collected with NORPAC standard net in 1957 cruise of the Oshoro Maru to Aleutian waters" (*Data Record*, No. 2, pp. 41–45)

(1957年おしよろ丸, アリューシャン海域航海, 北太平洋標準ネット採集プランクトン排水量及重量記録追加記事)

The number of the first four columns on pages 43 and 45 (Individual number of important species) means the individual number occurring in a haul, the number being not converted to the number per unit of water volume.

-Teruyoshi Kawamura and Masateru Anraku-

2. Correction of "Data on wet displacement volume of plankton samples taken with Kitahara's net in 1957 cruise of the Hokusei Maru to the Okhotsk Sea" (*Data Record*, No. 2, pp. 189–191)

(1957年北星丸, オホツク海航海, 北原ネット採集プランクトン排水量記録訂正)

Values of displacement volume should be corrected as follows: Data on wet weight which were not given in *Data Record*, No. 2, are presented here.

-Atsushi Iizuka, Hokkaido Regional Fisheries Research Laboratory-

Table 45. Correction of displacement volume in *Data Record*, No. 2, pp. 189–191, Table 6

| Station | Corresponding hydrographic station | Volume of water filtered($m^3$) | Displacement volume per $1000m^3$(cc) | Station | Corresponding hydrographic station | Volume of water filtered($m^3$) | Displacement volume per $1000m^3$(cc) |
|---|---|---|---|---|---|---|---|
| 1 | Ho 2 | — | — | 22 | Ho 24 | 5.2 | 865 |
| 2 | Ho 3 | 4.6 | 11087 | 23 | Ho 26 | 4.9 | 1041 |
| 3 | Ho 4 | 3.8 | 2921 | 24 | Ho 27 | 4.2 | 595 |
| 4 | Ho 6 | 3.4 | 2206 | 25 | Ho 29 | 5.5 | 1036 |
| 5 | Ho 7 | — | — | 26 | Ho 30 | 4.9 | 612 |
| 6 | Ho 8 | — | — | 27 | Ho 31 | 5.5 | 400 |
| 7 | Ho 9 | — | — | 28 | Ho 32 | 4.3 | 1256 |
| 8 | Ho 10 | — | — | 29 | Ho 36 | 5.5 | 1764 |
| 9 | Ho 11 | 5.6 | 4589 | 30 | Ho 37 | 4.5 | 644 |
| 10 | Ho 12 | 4.4 | 5227 | 31 | Ho 38 | 5.4 | 6463 |
| 11 | Ho 13 | 5.9 | 8407 | 32 | Ho 39 | 5.3 | 1509 |
| 12 | Ho 14 | 5.2 | 1192 | 33 | Ho 40 | — | — |
| 13 | Ho 15 | 6.7 | 299 | 34 | Ho 41 | 4.5 | 2689 |
| 14 | Ho 16 | 6.1 | 1525 | 35 | Ho 42 | 1.7 | 2941 |
| 15 | Ho 17 | 5.6 | 3750 | 36 | Ho 43 | 6.0 | 1350 |
| 16 | Ho 18 | 5.8 | 1690 | 37 | Ho 44 | 3.8 | 2105 |
| 17 | Ho 19 | 5.5 | 1200 | 38 | Ho 45 | 5.6 | 3589 |
| 18 | Ho 20 | 3.3 | 3485 | 39 | Ho 46 | 5.0 | 1080 |
| 19 | Ho 21 | 6.2 | 1129 | 40 | Ho 47 | 5.3 | 1283 |
| 20 | Ho 22 | 6.5 | 1492 | 41 | Ho 48 | 5.4 | 1296 |
| 21 | Ho 23 | 1.5 | 2200 | | | | |

3. Correction and additions to "Data on wet displacement volume and wet weight of plankton samples taken with fine mesh net in the Oshoro Maru cruise 42 to the Bering Sea in May–July 1958" (*Data Record*, No. 3, pp. 119–121)

(1958年おしよろ丸，ベーリング海航海，細目ネット採集プランクトン排水量及重量記録訂正及追加)

Values of displacement volume should be corrected as follows:

Numbers given in the parenthes (number of colonies per $m^3$) in the right column on page 121 should be recounted.

Data on wet weight which were not given in *Data Record*, No. 3, are presented here.

–Atsushi Iizuka, Hokkaido Regional Fisheries Research Laboratory–

Table 46. Correction of displacement volume and additions of wet weight in *Data Record*, No. 3, pp. 119–121, Table 6

| No. of collection | Corresponding hydrographic station | Volume of water filtered($m^3$) | Displacement volume per 1000$m^3$(cc) | Wet weight per 1000$m^3$ (gr) |
|---|---|---|---|---|
| 1 | Os 25 | 5.9 | 678 | 322 |
| 2 | Os 26 | 5.0 | 400 | 260 |
| 3 | Os 28 | 5.8 | 690 | 845 |
| 4 | Os 30 | 6.8 | 662 | 485 |
| 5 | Os 31 | 2.6 | 577 | 308 |
| 6 | Os 32 | 6.0 | 500 | 333 |
| 7 | Os 33 | 4.2 | 476 | 738 |
| 8 | Os 34 | 4.6 | 217 | 244 |
| 9 | Os 35 | 4.2 | 833 | 476 |
| 10 | Os 37 | 3.7 | 811 | 514 |
| 11 | Os 38 | 5.6 | 1964 | 1714 |
| 12 | Os 40 | 5.8 | 431 | 310 |
| 13 | Os 41 | 6.8 | 662 | 544 |
| 14 | Os 43 | 4.6 | 652 | 348 |
| 15 | Os 44 | 4.5 | 778 | 222 |
| 16 | Os 45 | — | — | — |
| 17 | Os 46 | 5.8 | 517 | 603 |

4. Correction and additions to "Data on wet displacement volume and wet weight of plankton samples taken with fine mesh net in the Hokusei Maru cruise 4 to the North Pacific and the Okhotsk Sea in May–August 1958" (*Data Record*, No. 3, pp. 255–265)

(1958年北星丸，北太平洋及オホツク海航海，細目ネット採集プランクトン排水量及重量記録訂正及追加)

Values of displacement volume should be corrected as follows:

Numbers given in the parenthes (number of colonies per $m^3$) on pages 257, 259, 261, 263 and 265 should be recounted.

Data on wet weight which were not given in *Data Record*, No. 3, are presented here.

–Atsushi Iizuka, Hokkaido Regional Fisheries Research Laboratory–

Table 47. Correction of displacement volume and additions of wet weight in *Data Record*, No. 3, pp. 255–265, Table 6

| Cruise | No. of collection | Corresponding hydrographic station | Volume of water filtered ($m^3$) | Displacement volume per $1000m^3$(cc) | Wet weight per $1000m^3$ (gr) |
|---|---|---|---|---|---|
| 4 (1) | 1 | Ho 1 (1 st) | 8.4 | 238 | 167 |
| | 2 | Ho 2 ( 〃 ) | 7.5 | 400 | 427 |
| | 3 | Ho 3 ( 〃 ) | 7.2 | 347 | 250 |
| | 4 | Ho 4 ( 〃 ) | 7.0 | 286 | 329 |
| | 5 | Ho 5 ( 〃 ) | 8.0 | 375 | 225 |
| | 6 | Ho 6 ( 〃 ) | 7.3 | 616 | 438 |
| | 7 | Ho 7 ( 〃 ) | 6.7 | 896 | 597 |
| | 8 | Ho 8 ( 〃 ) | 4.7 | 574 | 234 |
| | 9 | Ho 9 ( 〃 ) | 6.5 | 538 | 400 |
| | 10 | Ho 10 ( 〃 ) | 6.5 | 77 | — |
| | 11 | Ho 11 ( 〃 ) | 6.2 | 403 | 194 |
| | 12 | Ho 12 ( 〃 ) | 3.5 | 429 | 400 |
| | 13 | Ho 13 ( 〃 ) | 5.8 | 690 | 121 |
| | 14 | Ho 14 ( 〃 ) | 4.5 | 111 | — |
| | 15 | Ho 15 ( 〃 ) | 2.5 | 600 | 480 |
| | 16 | Ho 16 ( 〃 ) | 5.5 | 364 | 382 |
| | 17 | Ho 17 ( 〃 ) | 8.7 | 345 | 184 |
| | 18 | Ho 18 ( 〃 ) | 3.8 | 789 | 605 |
| 4 (2) | 1 | Ho 1 (2nd) | 3.9 | 641 | 308 |
| | 2 | Ho 2 ( 〃 ) | 4.5 | 444 | 178 |
| | 3 | Ho 3 ( 〃 ) | 4.6 | 652 | 522 |
| | 4 | Ho 4 ( 〃 ) | 4.4 | 1818 | 886 |
| | 5 | Ho 5 ( 〃 ) | 4.8 | 104 | — |
| | 6 | Ho 6 ( 〃 ) | 4.5 | 444 | 289 |
| | 7 | Ho 7 ( 〃 ) | 4.1 | — | — |
| | 8 | Ho 8 ( 〃 ) | 4.8 | 1042 | 604 |
| | 9 | Ho 9 ( 〃 ) | 4.4 | 114 | — |
| | 10 | Ho 10 ( 〃 ) | 4.3 | 465 | 93 |
| | 11 | Ho 11 ( 〃 ) | 2.9 | 690 | 207 |
| | 12 | Ho 12 ( 〃 ) | 4.8 | 1042 | 750 |
| | 13 | Ho 13 ( 〃 ) | 5.8 | 517 | 414 |
| | 14 | | 5.7 | 877 | 737 |
| | 15 | Ho 16 ( 〃 ) | 3.1 | 484 | 161 |
| | 16 | Ho 17 ( 〃 ) | 2.4 | 1250 | 375 |
| | 17 | Ho 18 ( 〃 ) | 3.6 | 556 | 111 |
| | 18 | Ho 19 ( 〃 ) | 3.9 | 513 | 436 |
| | 19 | Ho 20 ( 〃 ) | 4.2 | 238 | 48 |
| | 20 | Ho 21 ( 〃 ) | 4.2 | 119 | 48 |
| | 21 | Ho 22 ( 〃 ) | — | — | — |

Table 47. (Continued)

| Cruise | No. of collection | Corresponding hydrographic station | Volume of water filtered ($m^3$) | Displacement volume per $1000m^3$(cc) | Wet weight per $1000m^3$ (gr) |
|---|---|---|---|---|---|
| 4 (2) | 22 | | 3.7 | 270 | 27 |
| | 23 | | 3.7 | 1081 | 568 |
| | 24 | | 4.1 | 732 | 439 |
| 4 (3) | 1 | Ho 1 (3rd) | 5.3 | 472 | 57 |
| | 2 | Ho 2 ( 〃 ) | 2.0 | 1500 | 50 |
| | 3 | Ho 3 ( 〃 ) | 4.7 | 4362 | 4596 |
| | 4 | Ho 4 ( 〃 ) | 5.7 | 439 | 193 |
| | 5 | Ho 5 ( 〃 ) | 3.5 | 714 | 371 |
| | 6 | Ho 6 ( 〃 ) | 5.1 | 588 | 314 |
| | 7 | Ho 8 ( 〃 ) | 4.6 | 109 | — |
| | 8 | Ho 10 ( 〃 ) | 4.9 | 204 | 184 |
| | 9 | Ho 11 ( 〃 ) | 4.8 | 417 | 125 |
| | 10 | Ho 12 ( 〃 ) | — | — | — |
| | 11 | Ho 13 ( 〃 ) | — | — | — |
| | 12 | Ho 14 ( 〃 ) | 2.9 | 172 | 34 |
| | 13 | Ho 15 ( 〃 ) | 1.5 | 1333 | — |
| | 14 | Ho 16 ( 〃 ) | 2.6 | 577 | — |
| | 15 | Ho 17 ( 〃 ) | 2.8 | 1250 | 107 |
| | 16 | Ho 18 ( 〃 ) | 2.2 | 455 | — |
| | 17 | Ho 20 ( 〃 ) | — | — | — |
| | 18 | Ho 21 ( 〃 ) | 2.5 | 200 | — |
| | 19 | Ho 22 ( 〃 ) | 4.2 | 119 | — |
| | 20 | Ho 23 ( 〃 ) | 1.5 | 667 | 133 |
| | 21 | Ho 24 ( 〃 ) | 2.5 | 600 | 200 |
| | 22 | Ho 26 ( 〃 ) | 3.2 | 156 | — |
| | 23 | Ho 27 ( 〃 ) | 2.4 | 417 | 42 |
| | 24 | Ho 28 ( 〃 ) | 1.8 | 1111 | 444 |
| | 25 | Ho 30 ( 〃 ) | 3.2 | 313 | 469 |
| | 26 | Ho 31 ( 〃 ) | 3.6 | 694 | 361 |
| | 27 | Ho 32 ( 〃 ) | 2.6 | 1346 | 269 |
| | 28 | Ho 33 ( 〃 ) | 2.5 | 800 | 120 |
| 4 (4) | 1 | Ho 1 (4th) | — | — | — |
| | 2 | Ho 2 ( 〃 ) | 3.1 | 806 | 774 |
| | 3 | Ho 3 ( 〃 ) | 2.7 | — | — |
| | 4 | Ho 4 ( 〃 ) | 3.7 | 2432 | 216 |
| | 5 | Ho 5 ( 〃 ) | 4.1 | 610 | 463 |
| | 6 | Ho 6 ( 〃 ) | 2.9 | 690 | 276 |
| | 7 | Ho 7 ( 〃 ) | 3.9 | 769 | 564 |

Table 47. (Continued)

| Cruise | No. of collection | Corresponding hydrographic station | Volume of water filtered ($m^3$) | Displacement volume per $1000m^3$ (cc) | Wet weight per $1000m^3$ (gr) |
|---|---|---|---|---|---|
| 4 (4) | 8 | Ho 12 (4th) | 3.2 | 1875 | 844 |
| | 9 | Ho 11 ( 〃 ) | 4.3 | 116 | — |
| | 10 | Ho 8 ( 〃 ) | 3.0 | 667 | 67 |
| | 11 | Ho 13 ( 〃 ) | 1.9 | 1316 | 316 |
| | 12 | Ho 14 ( 〃 ) | 4.5 | 889 | 644 |

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